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ABSTRACT

Forty-four papers from the 1981 conference of the Higher Education Research and Development Society are presented that focus on issues related to the planning of learning, technique and art in teaching, and judging the effectiveness of learning. Among the papers and authors are: "Planning the Means by Which Teaching and Learning Should Occur" (W. G. Malcolm); "The Climates of Teaching and Learning That Australian University Teachers Establish in Their Undergraduate Classes" (J. Genn); "Planning for Distance Learning" (N. Westwood); "Teaching Your Discipline to Students of Another" (V. Ullrich); "Supervision of Post-Graduate Research Students" (I. Moses); "Students Teach Students" (D. V. Queis, M. Frilling); "Some Suggestions on Implementing a Successful System of Student Evaluation" (J. F. Henderson); "Language and Study Skills across the Disciplines" (L. Marshall); "Special Entry Students in Tertiary Education" (R. Osman); "Mature Age Students in Tertiary Courses" (L. Greagg); "Exit Interviews--Talking to Those Who Leave" (N. Lawler); "Barriers to Instructional Development in Universities and Colleges" (I. D. Thomas, H. R. Poole); and "The New Technicalities of Educational Technology" (E. C. Snell). (SW)

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Research and Development in Higher Education Volume 4

Papers presented at the seventh annual conference of the Higher Education Research and Development Society of Australasia on the theme of

Essential Elements of Teaching and Learning in Higher Education

Monash University, Melbourne
9 — 12 May, 1981

Edited by
Rod Wellard,
Lincoln Institute of Health Sciences

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HIGHER EDUCATION RESEARCH & DEVELOPMENT

SOCIETY OF AUSTRALASIA

The general objective of the society is to promote research and development in Higher Education. Membership of the society is open to any person interested in that objective.

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Preface

The Seventh Annual Conference of the Higher Education Research and Development Society of Australasia saw a timely return to some of the basic concerns which spawned the society in the first place. The conference focused squarely on the elements of teaching and learning in higher education. The key note addresses examined issues related to the planning of learning, technique and art in teaching and judging the effectiveness of learning. Special interest sessions, workshops and presentations explored various aspects of these broad themes. Conference participants had the opportunity to hear reports of recent research, discuss position papers, share experiences and become actively involved in workshops. The consensus of opinion among participants seemed to be that the conference was both stimulating and enriching. It is to be hoped that this volume will be equally stimulating for a wider audience of people. For if that is the case there is good reason to believe that the conference will have made an effective contribution to the improvement of teaching and learning in higher education.

Rod Wellard

Acknowledgements

The conference could not have been successful without the conference speakers and participants whose enthusiasm and support were very much appreciated. Dr. Graham Allen, Chairman of the Victorian Post-Secondary Education Commission, in opening the conference, set the pattern with some stimulating and thought provoking remarks. Dr. Barbara Falk's co-operation in stepping into the breach at short notice after Professor Bruce Williams was unable to attend due to sickness, was particularly appreciated.

The conference planning committee consisted of Helen Edwards, Ian Hamilton, Terry Hore, Rosemary Howell and Neil Paget. All of these people gave considerable support and assistance for which I wish to sincerely thank them. Winsome Ashcroft was the conference secretary and took responsibility for much of the organization and typing associated with the conference. My warmest thanks are for her. In addition, I would like to thank Tina Blackmur for her assistance in typing these proceedings.

Thanks also to Ted Snell who co-ordinated and set up all the audio visual equipment used at the conference. The equipment was supplied by HEARU of Monash University.

Finally, I would like to gratefully acknowledge the generous support of the Australia New Zealand Foundation in donating $800 to subsidize the fares of speakers from New Zealand. The value of their contributions is attested to in the following pages.

Rod Wellard

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INTRODUCTION TO PART 1

The four key note addresses at the conference are contained in part one. It was through the key note addresses that the conference programme attempted to develop elements of a conceptual framework for teaching and learning. The major elements identified as part of that framework were planning, teaching and appraisal of performance. The first three key note addresses examined these issues while the fourth address discussed basic concerns in the whole process.

Wilf Malcolm's paper addresses the issues involved in planning for effective teaching and learning in terms of a concern for desired ends, desired means, and the processes required to achieve these ends and means. A comprehensive understanding of these questions, he argues, involves fitting together the perspectives of students, teachers, the community and the teaching institution. Key themes which aid understanding the planning process are ACCESS, CURRICULUM and PERFORMANCE. In discussing the theme of ACCESS, Wilf Malcolm examines issues related to potential students being able to enter learning situations. Acknowledging that a mix of social economic and philosophical attitudes determine our approach to planning for access to tertiary institutions and particular courses he goes on to evaluate the arguments for and against restricted entry and concludes that accessibility should be made as broad as possible as the potentially higher attrition rate is a lesser cost than the consequences of restrictive entry. Wilf Malcolm uses the theme CURRICULUM to examine issues related to planning the content of teaching and learning in ways which link with the perceived needs, expectations and attainments of students. He points to needs for greater co-operation and collaboration between institutions, staff and students. In discussing his third theme, PERFORMANCE he states that the principle objective of teaching and learning is the enhancement of what individual students and teachers can do for themselves. The attainment of this objective involves rigorous concern for reviewing and developing the aims of the course as perceived by individual staff members and students and the roles and resources of staff individually and as members of teaching teams. In this process of review and development the guidance and encouragement of specialist staff - educational development advisors, and student counsellors, is invaluable according to Wilf Malcolm.

Richard Sutton analyses the process of teaching in terms of the concepts of 'technique' and 'art'. The concept of techne in ancient philosophy incorporated the notions of skill and creativity in producing something. In teaching this would mean producing students who have a greater knowledge of information, appropriate values and personal qualities and effective professional skills. However, Richard Sutton argues, if this is all teachers do, it is on the one hand, depressing (imparting information is a rather dull process); and on the other, disturbing (imposing a value structure on students without their questioning it has unacceptable moral implications). Thus teachers need to go further by attempting to produce independence of mind in students. Yet, there is an inherent contradiction in the notion of producing independence. Tichard Sutton states that the art of teaching extends beyond mere competence in the skills of lecturing, tutoring,mastery of subject matter, etc., to a deep appreciation of the interaction between teacher and student. It is in this interaction that creative art is possible. Art is identifiable by Blake's distinct, sharp and wiry bounding line. Recognising the line is an individual process requiring active vision and judgement on the part of students and teachers alike. Richard Sutton argues that rather than concentrating on competence and precision in teaching, teachers should aim to present material rich with possibilities adjusted for the capabilities of the students for whom it is intended. He acknowledges that this approach may have problems associated with the intrinsic non-creative disposition of the subject matter, and its conservative value structure. More pragmatically the exigencies of timetabling and repetition mitigate against maintaining the creative spark. However, Richard Sutton indicates that there are approaches which can assist in overcoming the problems. He concludes that the nature of art is such that it does not guarantee results. Sound technique is the foundation for a broader vision of the teaching role which is appropriately labelled 'art' and is essential in helping students to independence.

One theme which emerges in a variety of guises in both papers is a concern for opening up the teaching and learning process and demystifying it through more interactive and eclectic approaches. Bernard Rechter adopts a stance consistent with this in discussing the assessment of learning performance. He points out that the traditional paradigm of student assessment involves judgements about types of assessment tasks, situations and contexts which are usually subjective. In making a judgement about competence we purport to say that the individual assessors judgement is generalizable across task, time and place dimensions, yet notwithstanding the systems produced by assessment technology, designed to rationalise subjectivity and give an aura of objectivity, it is almost self evident that no assessment is wholly reliable or valid. In practice these terms have no meaning unless the educational and social purposes of the assessment are known. Bernard Rechter argues that specialists in educational measurement have concentrated on the statistical manipulations rather than coming to grips with the more substantive issues of social relevance and applicability. Efforts to achieve greater validity and reliability are not only heavily constrained by the subjectivity of assessors but also by logistic and economic limitations on the type of assessment tasks set. Bernard Rechter points out that experience has shown that different assessors working from a common statement of course objectives will vary markedly in the type of assessment tasks they set. It is therefore important to recognise that subjectivity is inevitable and that the real issue is to develop assessment processes and procedures which meet criteria of acceptability.

Barbara Falk examines the basic elements of teaching and learning in terms of the cultural and ideological purposes of knowledge. Having identified the most basic element of learning as students formulating and seeking answers to their own questions she goes on to raise some penetrating questions of her own: Has higher education failed if it has not established a link between knowledge, skills and moral action? Is the 'knowledge' which the various categories of people identified by Wilf Malcolm see as a desired end, the same 'knowledge'? Who owns the knowledge? Is the desired end of knowledge to legitimate the status quo or to attack the existing social order? Are these questions at the heart of the inherent contradiction perceived by Richard Sutton in producing independence? If assessment of learning must as Bernard Rechter stated have acceptable levels of validity and reliability - acceptable to whom? Barbara Falk affirms the basic importance of the individual valueing the process of thinking freely and acting consistently with those thoughts. Educational theories and practice reflect the varying perspectives about man in society consequently it is not surprising that there are apparent conflicts, contradictions and inconsistencies in the ways in which tertiary institutions identify and perceive the value and structure of knowledge and the basic elements in teaching and learning.

PLANNING THE MEANS BY WHICH TEACHING AND LEARNING SHOULD OCCUR

WILFRED MALCOLM,
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VICTORIA UNIVERSITY OF WELLINGTON

I am grateful for the opportunity of sharing in the activity of this conference. Nonetheless I must also confess that I attend with an ambivalent attitude towards its value. As a university teacher of 20 years' experience, combined in more recent years with wider academic administrative responsibilities in department and university, I need no persuasion that there are substantial issues that need to be addressed in our teaching and learning situations at tertiary level. Such organisations as HERDSA and such conferences as this one are a valuable means to this end. But my ambivalence in attitude arises from my fear that higher education research and development will become isolated as an internalised, specialist activity within the larger field of educational studies. It will develop its own expertise and experts, its own academic sub-culture. And in this process it may lose its capacity to be the vehicle by which all engaged in tertiary level education are enabled to enlarge their effectiveness as teachers and learners, and to be a means by which tertiary institutions are encouraged to plan so that this can happen.

That this can come about is not because those engaged in such organisations or in planning such conferences do not wish it to be otherwise. It is more because of how others perceive these activities. Let me illustrate this with a personal example drawn from a related but different situation.

Educational Administration

In New Zealand there has been established a few years back an association for educational administrators. So far, I have resisted the invitation to join the association, despite my growing involvement in administration and my recognition of the generally worthwhile aims of the organisation. Why is this?

It has to do with how I identify myself as a member of the university staff. I see myself as a member of the academic staff engaged in teaching and research in Mathematics. My colleagues have like functions but in different disciplines and subject areas. Some of them, engaged in educational studies, teach and research in the area of educational administration. Should I see my growing involvement in administration at departmental and university level as representing a change of academic focus for my teaching and research? I think not and this is the reason I have resisted joining the Educational Administration Association. My role as an administrator is to serve the academic life of the institution to which I belong through the various responsibilities laid on me. It is not to become engaged in a new field of academic study.

But, of course, it will be protested that if I am to be effective as an administrator, and if, collectively administration at tertiary level is to be effective, account must be taken of the conceptual framework in which the experts see the functions of such administration and of the availability of a growing body of research data relating to it. Moreover, it will be said, this is the function of the Educational Administration Association, namely to bring together the practitioners and the experts for their mutual benefit,

I accept that such a case for an association can be made in the above terms but I have introduced reference to it as an illustration of the danger of a primary gap between the concerns and activities of people such as ourselves and those of the wider body of our colleagues in the institutions to which we belong. In this conference, as in related activities, and certainly in the intention of this address we are concerned with basic activities that belong to the whole institutional life. Moreover we are concerned to find ways and means by which the behaviour of all teachers and students can be modified and changed so that their participation in these activities becomes more personally satisfying and more effective in achieving desired ends. So often our activity and concern is not perceived by our colleagues in these terms. They see us as, no doubt, engaged in legitimate academic pursuits, but pursuits alongside and alternative to their own, which are equally legitimate. They do not easily see that the issues which we seek to address belong to the concern of all in tertiary institutions and, in appropriate ways, should claim their attention and energy as much as ours.

Or, to be fairer, and as many of our colleagues would protest, they share the concern to be more effective in their teaching activities and in creating better learning situations, but they do not see how what we are about will relate to the particularity of their situations.

Principal Affirmation

Here then is my principal affirmation in the theme of this address. Planning the means by which teaching and learning should occur must take as its principal objective the enhancement of what individual students and teachers can do for themselves. The means that are developed and used cannot be other than student and teacher orientated. This will be the measure of both their strength and their limitation. Strength, in that raising the level of performance of teachers and students is improving the quality of an institution's life at its source. Limitation, in that the willingness and ability of teachers and students to use the means provided for improving their learning and teaching sets bounds to the usefulness of those needs.

Comprehensive Framework

I wish to establish a comprehensive framework in which to discuss planning the means by which teaching and learning should occur. The framework will be too large for me to support in detail in one address but, nonetheless, even in the one address it is important to have contemplated the whole.

The title of the address presents us with three major questions.

> How should teaching and learning occur?
> What are the means by which it can be enabled to occur in the desired ways?
> What planning processes are required to establish these means?

How Should Teaching and Learning Occur?

The first answer: to achieve desired ends, immediately creates a further question. What are these desired ends? An answer to the second question requires the acknowledgement of several points of view: that of the student, that of the teacher, that of the institution and that of the community.

Student View

From the point of view of the student a desired end may be the gaining of a particular qualification, perhaps an entry into a desired professional career. Or, more specifically, it may be to gain some intellectual skill, technical or cultural that can be put to use in specific ways. Or, less vocationally oriented, the desired end may be to become an educated person, to learn about things that interest one, and this not just learning for its own sake by private and individual means but learning from persons established in the chosen field of studies and to gain some qualification that demonstrates achievment to one's self and to others.

Teacher View

From the point of view of the teacher the desired ends are sometimes differently perceived and stated. The desired end may be to impart knowledge, to share one's own understanding. It may be to gain disciples for one's own discipline, perhaps even to recruit research students to share in and carry forward one's own enquiries. No doubt, for every responsible teacher, the desired end in part shifts from concern with the content of what is being taught to the personal needs, intellectual and social of the person being taught. The desired end is expressed in terms of enabling students to attain intellectual and social maturity.

Community View

From the point of view of the community the desired ends are complex, and often not well defined. Frequently one aspect will be in conflict with another. Governments, through their funding actions, will be the vehicle for one expression of community concern, namely the production of trained persons who will be able to undertake the variety of sophisticated technical, professional and cultural roles needed to maintain the infra-structure of a modern society. Some of the community look to tertiary institutions, especially the universities, to maintain desired intellectual and cultural values. From this point of view teaching and learning should occur to enable the pursuit of truth, to develop the reflective and critical mind, to serve as the vehicle for the expression of conscience within society, as a custodian and promoter of its spiritual values.

Institution View

And then there is the point of view of the tertiary institution, the university or college of advanced education, the teachers' college or technical institute. For the universities the desired end in learning and teaching is most often summarised as the dissemination and advancement of knowledge. For other tertiary institutions the focus is more located in the training of persons for immediate technical and professional roles and the imparting of immediately useful skills. But of course these distinctions cannot be maintained absolutely between different tertiary institutions. They overlap and intertwine even in the life of one institution, often in a bewildering manner. That this is so is in part the outcome that each tertiary institution has to act as a broker between the desires of student, teachers and of the variety of pressures from the community.

From this point of view how should teaching and learning occur? In ways that optimise the opportunity of students to gain their desired ends in learning, that optimise achievements in teaching for those so engaged, and with all, enable the needs and expectations of the community to be reasonably met. And through it all an institution will be concerned that learning and teaching takes place in accord with recognised standards of performance so that the quality of its outcomes can be validated in the wider professional and intellectual community and in society at large.

Planning the Means

This brings us to the second and third questions. What are the means by which teaching and learning can be enabled to occur in the desired ways? What are the planning processes required to establish these means?

For the purpose of systematic thought I have found it useful to divide the variety of means by which teaching and learning can be enabled to occur into three categories. Ones of ACCESS, ones of CURRICULUM and ones of PERFORMANCE.

ACCESS

There is no need to argue that for the potential student a critical means to enabling learning to occur is access to the institutions in which teaching is provided and to courses whose functions are to impart the desired knowledge and intellectual skills. Access to knowledge and associated qualifications raises deep social and political questions.

Such access from the point of view of the individual can be the means to personal and social advancement. From the point of view of the community it can, intentionally or unintentionally, be a means of social selection and social control. At its best, in the words of the William's Report, it can "facilitate the mobility of those who possess the credentials it provides and reduce the role of family wealth and connections in the process of social selection". At its worst it is the means by which the entrenched privileged groups in a society reinforce their privileged position and control the entry of those with whom they chose to share it.

Opportunity for all

So it is that planning the means of access must take account of basic values that relate to a view of society and the functions of knowledge within it. Traditionally these values have had a focus around the right of the individual to gain access to appropriate learning institutions for opportunity of personal development and social advancement. In New Zealand the words of Peter Frazer, spoken in 1939 while Minister of Education, are frequently quoted with approval; "that every person, whatever his or her level of academic ability, whether they be rich or poor, whether they live in town or country (and, no doubt, we would add today, of whatever race or religious belief) has a right, as a citizen, to a free education of the mind for which they are best fitted and to the fullest extent of their powers". Mr. Frazer was, of course, speaking in the context of primary and secondary education but the view stated has been a strong influence on the development of university education in New Zealand with its relatively open system of entry. The same value, I note, is expressed in the William's Report in the words ".. that every young person of appropriate ability who desires a university education should have a fair chance of getting it."

This same emphasis on the desirability of wide opportunity of access to education underlay the dramatic development that took place in the 1960's in the range of tertiary education available and the type and number of institutions to provide it, especially here in Australia, to a lesser extent in New Zealand.

The value of maximising individual opportunity cannot be the only one that governs planning the means of access to learning opportunities. The need of society for trained personnel to sustain its technical, industrial, social and cultural life must be given full weight. Furthermore, there is no escaping the hard reality of the economic facts that will determine the possible within the larger field of the desirable.

Student Failure and Restricted Entry

I want to comment on two specific issues involved in planning the means of access to learning situations. The first arises from the recognition that many students who begin courses at tertiary institutions fail to complete them. Both in universities and polytechnics and colleges of advanced education the attrition rates in general are high. Many factors bearing on this are being given attention within institutions and between institutions, with varying degrees of success.

One way of seeking to remedy this situation which is being considered is the better identification of those who are likely to fail and excluding them from entry altogether. The William's Report in one of its important general recommendations (iv,e) states that undergraduate entry to universities should be related more closely to the statistical probability of success in degree studies.

Arguments in favour

There is an initial attractiveness about such proposals. The restriction of access to those who are most likely to benefit from and to pass the relevant courses has obvious virtues. One such is that the teaching resources will not be dissipated on those who are unlikely to benefit and, so, more readily available to those who will benefit. All of us as teachers in tertiary institutions know the substantial time that weaker students can claim from us.

There are economic arguments as well. One of these has to do with the ability of students to finance themselves or be financed through the period of their studies. There is an upper limit to the amount an economy can provide, in total, for tertiary student grants. Spread amongst too many it is insufficient for any one person. But if the numbers gaining access are severely restricted then each can gain enough to meet their needs, and those being supported are those most likely to succeed.

Such a proposal, moreover, is finding favour with those who tend to the political and philosophical view that the functions of tertiary education, and especially of the universities, is training of a highly skilled intellectual elite whose role is critical to the ability of a society to survive in a highly competitive world.

Need for Caution

Despite these advantages, I want to express caution against going too far in restricting access at the single point of entry into institutions and courses. The data on which the selection process will take place will, at best, be uncertain in its reliability to predict success. I am a member of the Council of Wellington Teachers' College which has a highly developed selection system accepting as students to the College only some of the much larger number who apply for entry. Members of Council often express surprise when advised of students who have not succeeded in their studies. How can it be, they ask, that such students were accepted in the first place. They ought not to be surprised for human performance and achievment is not subject to total quantification that would enable error-free predictions.

A further reason for caution is the recognition that the pre-tertiary educational experience of those seeking access will have been far from uniform. When to this is added the variability of home, family, social, cultural and racial factors the ability to accurately predict the subsequent success of individual persons becomes seriously open to question.

Perhaps I should say, too, that while I fully recognise the special role for the intellectually able in our society I would wish such persons to be nurtured in communities where they relate to a much wider group and emerge in the context of performance through life, not selected out too early as an elitist over-group.

My own judgment is that we should enlarge the entry points to as wide an extent as is possible, taking into account the various constraints that must be met, and allow further selection to take place in terms of actual performance in the institutions and courses. Such a view tolerates a substantial attrition rate but sees it as of lesser cost in terms of a balance of values than the consequences of more restrictive entry schemes.

Restricted Entry and Special Courses

The second specific relates to access into special courses. For many years access into professional courses such as medicine have been controlled by man-power considerations. But increasingly, over recent years, restrictions have been introduced on courses within more general degrees. At Victoria University a wide range of courses within the degree of Bachelor of Commerce and Administration are subject to strict upper limits resulting in many students being denied access to them. Critical questions are arising for which many departments and their academic staff have had little experience in answering. What are the criteria by which students should be selected for entry into such courses? How are the needs and aspirations of the individual balanced against the requirements of society?

In line with my view expressed above I believe that restrictions on first year courses should be minimised as far as possible in order to allow a wider entry at that level. Then, where the restrictions are necessary in second and subsequent years, selection will take place from amongst a group of students who have had, at least, a common year of experience within the course. This requires that the more general first-year courses can lead on to a variety of alternative courses at later levels so that those who are restricted from entry into the courses of their first choice can gain access into acceptable alternatives. Such planning needs to take place not only within one institution but between institutions so that students not able to continue as they wished in the one might be able to transfer with due credit to another.

Portable Qualifications

In a similar spirit care must be taken that initial qualifications for entry into specific occupations are not restrictive to entry alone into those occupations. I noticed in the Wellington press recently a reported statement from the President of the New Zealand Pharmaceutical Association seeking that the intakes into the two pharmacy training courses in the country be cut back by at least 10%, on the grounds that the pharmacy occupation could not absorb the number of students being trained. I believe the role of professional organisations in determining the number of students being trained for entry into their profession should not be the dominant one. It is possible for such organisations, and I include the medical organisations, to be more concerned with the interests of their own members than for the wider public good. Moreover, man-power planning will always be a tentative activity. The lead time required for training is often too long to allow accurate relationship to the shorter term perceived situations within society at large. Thus it is that the entry professional qualifications offered and attained should have a substantial general component that gives them a portable quality, allowing students gaining them access to a wider range of occupations than the primary one specified.

CURRICULUM

The second category of the means by which teaching and learning should occur has to do with curriculum and course content. I mentioned above the concern expressed in the William's Report regarding the high attrition rate in tertiary institutions. While expressing caution about seeking to redress this by severe restriction at entry level yet I wholeheartedly endorse the alternative recommendation of the Report: "That in view of high attrition rates in advanced education, colleges of advanced education should give greater attention to curriculum planning and the selection of the appropriate levels of study for their students". But I would extend it to include all tertiary institutions including universities.

Institutions have already begun to take account of such a need. For example, university departments of mathematics have had to face this issue of curriculum development in the light of their responsibilities to provide an increasing range of service courses, especially at first year. A wider range of students are requiring mathematics of a kind and at a level of simplicity which the traditional university courses in mathematics did not provide.

As another example I have been impressed with the total reorganisation of courses that has taken place in the programme of studies at Wellington Teachers' College. The programme has been structured on a smorgasbord principle of a wide range of units offered so that each student can select from it a personal study programme that relates to his or her perceived needs for particular skills and knowledge aquisition and relates to his or her previous level of attainment. Of course other constraints bear upon the student's choices and the development has not been without severe administrative difficulties in its out-working. But this not withstanding there is no doubt that the closer link between curriculum content and students perceived needs and level of prior attainment has brought a lively and creative spirit into the teaching and learning situations in the College and one that gives promise of reducing student failure.

Student Involvement in Curriculum

I consider that one of the greatest challenges facing us as tertiary institutions is how to involve students effectively in the curriculum development in such a way as to interact with their own learning situations. In medium term developments university institutions and others have made some progress in this respect through student membership of relevant committees. In the changes I referred to above in the Wellington Teachers' College students played a significant part in the process, through their membership of the various committees. At Victoria University two major curriculum developments in recent years, those in Religious Studies and Womens' Studies have been in response to substantial student initiative.

Minority Needs

Somewhat as an aside let me share with you a remark made by a student in a recent Faculty of Arts meeting concerned with the proposal to further extend the Women's Studies programme to third year level. One academic, opposed to the development asked; "May we be told what is the usefulness of these studies? How will they enable students to compete in the career world?". A student member of the Faculty immediately replied; "These courses have enabled me to understand myself better as a woman and given me confidence to be the person I am, and in that confidence to seek a responsible place in society, both in terms of career and otherwise".

For me that is one of the finest things that could be said as an outcome to any learning situation. Notice how critical is the curriculum to enabling that kind of teaching and learning to occur. How important it is that our tertiary institutions, through curriculum development become more responsive to the concerns of minority groups in our society and culture so that the learning situations created enable those from those groups to identify themselves as they are and not in terms of what they are not. This means that all of us, especially those in positions of administrative responsibility, must listen more carefully to the minority voices.

I return to the point I was making. It was that while some progress has been made in the contribution of students to the middle and longer term development, yet this is not enough. In that way students help to effect changes that will benefit a later student generation. What is also needed is the means of contribution that will effect changes in the curriculum content of the teaching and learning situations that they are already part of.

Motivation

One of the keys to successful learning is the right motivation of those engaged in it. But almost always, as a teacher, I am seeking to motivate the interest of students in material that I and academic colleagues have already chosen. Genuine motivation, I suspect, will be directly related to the extent to which the student is able to determine his or her own curriculum in cooperation with my role as a teacher. I know, even in my own University, that some teachers have experimented with devlopments in this regard. I believe much greater attention must be given to what they are doing for the benefit of us all.

Curriculum Development Between Institutions

Curriculum development within courses and within an institution are an important means enabling teaching and learning to occur in desired ways and for desired ends. Also of importance are the curriculum developments that need to take place between institutions. I cannot speak with detailed knowledge of the Australian scene although I note the William's Report gives a great deal of attention to the kinds of courses provided in the different institutions and the need for close relationships between them to aid access and attainment. Certainly in New Zealand the need to clarify relationships between courses taught in different institutions and the need to find ways in which such courses can contribute to common qualifications is urgent, perhaps the most urgent single factor in planning across the tertiary field as a whole.

Access to Degree Qualifications

Some progress has been made, but in my judgment, not enough. In New Zealand the universities are the only degree granting institutions. I support the desirability of this policy but it will not be easy to maintain if the universities do not show themselves more willing to meet some of the legitimate aspirations of polytechnics and teachers' colleges to have some of their courses recognised directly for degree purposes.

At present various qualifications gained outside the universities are recognised as a whole enabling students to be granted initial credit towards a first degree. In engineering and architectural degrees the recognition of polytechnic qualifications is more explicit. In at least three situations in New Zealand relationships have been established between a teachers' college and the neighbouring university enabling the college to teach courses directly credited to an education degree. Regretfully, no such relationship has yet developed at Wellington, despite earnest endeavours over the last several years. The lack of such relationship I believe impoverishes the teaching and learning situations in teacher education in Wellington.

An interesting possibility is presently before us in Wellington in relation to nursing education. The School of Nursing Studies is established in the Polytechnic. It provides a three year basic diploma course leading to registration as a nurse and one year post-basic advanced diploma courses. The nursing profession desires that a degree in nursing should be available to those who are likely to become professional leaders. Because the University is the only degree granting institution the proposal is to meet this learning and qualification need by creating a department of nursing studies within the University. To do so would separate it from its natural context in the already existing School of Nursing Studies in the Polytechnic, a separation not in my mind justified by the alternative supporting links that it might establish in the University community.

The development I would like to see considered is the establishment of an advanced studies unit in the School of Nursing which was recognised by the University and in an affiliated relationship and which taught courses directly credited to an appropriate degree granted by the University. This is of course a complex matter and I only commented on it by way of an illustration of the kind of curriculum development that is needed in the tertiary field. One of the consequences of such development is that it would free the universities to give greater emphasis to graduate and advanced programmes for which they are especially fitted.

PERFORMANCE

The third category of the means by which teaching and learning should occur has to do with the performance of those who are actually teaching and learning. You will recall that at the beginning of this address I made a strong affirmation that planning the means by which teaching and learning should occur must take as its principal objective the enhancement of what individual students and teachers can do for themselves. But they cannot be left to themselves to do it.

To illustrate this I would like to share with you a brief account of a small programme I was involved with in my own Department of Mathematics at Victoria University. There was nothing unique of course about the programme, similar ones have been held, no doubt, in many situations. But citing it will enable me to make some comments relevant to this address.

An Evaluation Programme

The project covered the years 1976 to 78. It involved a group of some 8 staff all involved in teaching large first year courses in mathematics. As Professor responsible for that area of the Department's work I took the initiative in instigating the programme, but as I will comment in more detail later, this was only possible because of the presence of the Centre of Teaching and Research and the availability of Brad Imrie, its staff member, to be associated with the project.

Aims

I had three broad aims in mind. The first was to develop the quality of teaching and learning within the courses concerned. To do this it was necessary to find out in some detail what was actually happening in the various phases of the courses involved, both as viewed and experienced by the students in the courses and, also, as viewed and experienced by the lecturers and tutors. A second aim was to foster a team approach to the teaching amongst a group of lecturers and tutors involved in the courses. In part, of course, this would contribute to the achieving of objectives within the first aim, but, more than this, it could establish relationships amongst staff members whereby teaching skills and experiences were exchanged and difficulties shared. Insofar, too, as it was seen to be an activity in which the Department as a whole placed some importance it could serve as an encouragement to all staff members to place high value on their effectiveness as teachers, as part of their role as university mathematicians. A third, and more specialist aim, came from the desire to give focus to the special interest in mathematical education being shown by some of the staff members in the Department. In the short term the programme could enable the growing expertise of these people to contribute to the strengthening of the teaching role of the Department itself; in the longer term it could lead to an on-going programme of research in mathematical education beyond the immediate context of the project.

The project as developed involved a complex of interacting activities consisting of lecture observations and evaluations, questionnaires relating to course content, teaching performances and learning experiences. Regular review sessions were held involving all staff involved in the programme and, sometimes, including students. A small planning and monitoring group consisting of Brad Imrie, myself and two other staff members maintained a regular oversight of the programme as it developed through its various phases.

Staff Concerns: Time

In early discussions with staff members about the possibility of the programme I encountered two strong concerns. The first was the concern that the mechanics of the programme and participation in it would claim too much of a staff member's time. In the event this did not become a practical issue, probably because involvement in the various activities was not obligatory and some staff members tutoring in the courses did not participate in all its phases. On the other hand, some staff members not directly involved attended the review sessions to gain experience in relation to their work in other courses. Towards the end of the programme when proposals were being considered for making the courses more effective some staff members again expressed anxiety about the time commitment involved in relation to their other academic work, especially research.

The validity of such concern must be recognised. The extent to which time commitments can be sought from academic staff is the extent to which it can be seen that significant benefit will flow to the students in the courses in terms of their learning experiences and to the staff members themselves in lifting the level of their teaching performances.

Staff Concern: Individuality

The second concern, a much deeper and more serious one, was widely felt among staff members. It was a concern that too formalised a programme of assessment would threaten the individuality of a staff member's teaching style and intrude on the privacy of his or her relationship with the class. While this did not become an issue in practice, yet it remained a prominent factor in the awareness of several staff members throughout the time of the programme. The boundary line between encouraging staff members to develop their own teaching and lecturing styles, while drawing on the experience and insights of others, and changing their styles through the pressure of group norms is not easily defined. But care needs to be exercised in case, inadvertently, one passes from one side of the line to the other.

Outcomes

This project had many successful outcomes and a detailed account of it is available in one or two places including the VUW Teaching and Research Centre series of occasional papers. The successful outcomes related to the performance of individual teachers, the content and style of the courses. While these developments have had obvious beneficial outcomes for students taking the courses yet I think it fair to say that the programme did not address issues from the point of view of students directly.

Encouragement of Local Strategies

My reference to this programme in this address is to enable me to illustrate two points which I believe need to be noted about planning the means by which teaching and learning should occur as it relates to performance of teachers and students. The first is that we need to encourage the activity of such ad hoc groups in the manner I have described, concerned to give special attention to some aspect of their teaching and learning over a nominated period of time and with specific goals to be achieved during that time. I have no doubt that almost every tertiary institution has an insitutional committee charged with teaching and learning responsibilities, and probably programming institution-wide courses and seminars. This is needed but is not enough. The activity must be established within the local academic and professional groups within an institution. This requires that those who have leadership responsibilities in those groups must take initiatives from time to time that not only relate to their own teaching activities but also to those of their colleagues and, where possible, to the learning strategies of the students involved in the courses.

Need for Specialist Staff

The second point to be noted is the requirement that there be available on the staff of the institution a person or persons whose special responsiblities are to work with teachers and students in making more effective their learning and teaching activity. In the project I have spoken of earlier although the initiative for it came from me I was only able to take that initiative because of the encouragement and guidance of the staff of the Teaching and Research Centre. Moreover, the project would never have been carried through without the intimate and substantial participation of Brad Imrie, one of the Centre's staff members. Although in theory, some may argue, it could be done without such specialist help yet in my experience it rarely happens without it.

Study Skill Programmes and Student Counsellors

This enables me to make a supplementary point. In the Teaching and Research Centre of Victoria University of Wellington Professor Clift and Mr. Imrie have chosen a strategy of mainly working with teaching staff and not directly with students. In part, this strategy is based on matters of principle but is also based on the practical recognition of the limitations to the Centre's resources in staffing and otherwise, so that all that may be desirable cannot be undertaken. In the Victoria situation, and I expect elsewhere, it has been left mainly to student counsellors to develop study skill programmes aimed directly at the students.

The Counselling Services, in New Zealand at least, have developed initially in the context of medical and health care, but, increasingly, counsellors see the need to centre their work directly in the context of student learning activities. I support this development and believe that in time student counsellors should be integrated into the specialist teaching and learning units within a tertiary institution rather than associated with the medical and health care services. Just as it is recognised that academic and professional staff members need to acquire specific skills if their teaching is to be effective so too, in corresponding manner, students need to acquire specific skills of learning. To the extent that specialist staff can help them acquire these skills then such staff are necessary as part of the academic and professional commitment of any tertiary institution.

I return to the opening affirmation of this address. The performance of teachers and students is the essential means to enabling teaching and learning to occur. The primary goal in planning such means is to create a heightened self-consciousness amongst teachers and learners of their roles as teachers and learners and to develop regular opportunities, structured within their local academic and professional groups, whereby they can review and renew their activity and the associated skills.

Conclusion

So there it is. I have sought to develop a comprehensive response to the theme which was set before me. Planning the Means by which Teaching and Learning should occur. Through the sub-themes of Access, Curriculum and Participation I have sought to provide a framework in which many and various issues that affect teaching and learning can be comprehensively considered. It is no doubt true that some parts of it affect us as individuals more than others. But we need to be careful that we do not think that the issues which touch us most closely are the only ones that are relevant. Indeed I think it is always a danger that we can devote a lot of time and energy to aspects of the teaching and learning situation that at best can only bring about marginal improvements whereas other factors that have a capacity for large effects are neglected altogether. The various issues can be considered separately but they interact in practice and often in a way that reduces the autonomy of student and teacher. These two, teacher and student, while sometimes cast as adversaries belong to each other if each are to achieve their desired ends in teaching and learning.

A National Centre for Teaching and Learning

I finish with one practical suggestion that relates to the New Zealand scene. In most tertiary institutions specialist staff have been appointed to assist academic and professional staff in their teaching functions. To this end the Teaching and Research Centre was set up at Victoria University of Wellington some years ago under the directorship of Professor Clift. It has been established most successfully. My suggestion is that the Centre should be developed in such a way that part of it can continue its internal functions within Victoria University but that overall it be recognised and built up as a national centre with structural relationship to all tertiary institutions. Professor Clift has from the beginning been available for such functions but I believe the present stage of our development in New Zealand in tertiary education and particularly in the field of relationships between institutions would be much helped by the formal recognition of such a national centre. It would need to be jointly funded and managed and with a defined role in relation to the whole tertiary field.

Should the idea commend itself for further consideration I would be glad to develop the proposal in more detail. But not now.

TECHNIQUE AND ART IN TERTIARY TEACHING

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The topic I have been invited to speak on is an intriguing one, and as I have pondered it I have found myself drawn deeper and deeper into things which are scarcely the province of a lawyer to discuss. Yet discuss them I must, if I am to do justice to the title of this paper. I hope you will forgive me if I appear to be very selective in the points of reference I have made; I could not hope to present a fully rounded view of what is meant by "art" and "technique" in tertiary teaching, or to explore every insight which is offered by studying various theories of aesthetics. I should also make the qualification (and I do so less apologetically) that in relating theory to practice in teaching, I can draw only upon experience in the teaching of law, and that in the somewhat rarefied atmosphere in a University. The problems of which I speak are, to some extent, peculiar to law teaching; I hope you will extract from my paper what is relevant to your teaching, and bear with me as I seek to illustrate general principles and questions by referring to issues in law.

What I would like to do is to look at the scope of the concept of "technique", to see whether satisfactory goals for tertiary teaching can be established by reference to it. Then I will look beyond "technique" to the concept of "art", as that term is understood nowadays, and explore some of the advantages and pitfalls of attempting to call our trade an "art".

TECHNIQUE

My initial, rather cautious reponse to the question proposed to me was the thought that it is pretentious for any person engaged in a trade or profession to seek to elevate his work to the status of an art form. At the same time, it is quite apparent that what we are called upon to do ascends above mere "technique", as that term is commonly understood today. If we were technicians, we would be given an established body of information, learning or skill to impart, and we would be judged by how successful we had been in getting our students to acquire what it was we were supposed to teach. This is plainly not so. In New Zealand, despite the well-meaning attempts of the University (in conjunction with such quasi-professional bodies as the Council of Legal Education) to set out a "prescription" for our courses, a very heavy responsibility of selection and emphasis still falls upon the individual teacher - and, I think, rightly. If by technique (as opposed to art) we mean the "manner of artistic execution or performance in relation to formal or practical details", or the "mechanical or formal part of an art" - which is the Shorter Oxford Dictionary's description of the meaning of the term - then whatever else we are, we are not mere technicians. Modesty and perhaps honesty also forbids us to describe ourselves as "artists", so what are we?

I was at first much attracted to a definition of the term "technique" that allowed me to avoid that dilemma. Can it be that there are certain skills - such as being a teacher, or a lawyer - which have been by-passed by current trends in fashion, being neither "arts" (i.e., the exercise of creative genius) nor "sciences" (i.e., the discovery of regularities verifiable by observation or experiment), and which have therefore to be analysed according to earlier ways of thinking? The distinction between "art" and "technique" is a comparative newcomer on the intellectual scene. Before the eighteenth century, it seems, no such distinction was drawn. The concept of techne, in ancient philosophy,[1] included both the technical skills which went into the production of an artistic or professional work (including articles we would now dismiss as objects of "trade" rather than art) and also the vision which was required to see that such a work was possible. This is a very appealing notion. In the first place, there is no need to draw troublesome distinctions; the most one can say is that certain activities , if successfully carried out, involve a lesser degree of vision and creativity, and a greater degree of mechanical skill, or vice versa. The second thing is that there is no "elitist" connotation to the term; it would allow the teacher to get on with his or her job, using all the insight and creativity they possess, without having to make claims that others might find suspect and self-serving.

Excited by the prospect that this intellectual sleight of hand would spare me a great deal of trouble, I pursued the concept of techne further, and came up with some interesting things that Aristotle had to say in the Nichomachean Ethics.[2] I was told that the term has to do with production, that is to say, the bringing into existence of something which existed only in potentiality, and which did not necessarily have to become actuality. It is also done under the "guidance of true reason", and not haphazardly and accidentally. Thus, the "art" or "applied science" of building a house is aimed at producing houses. If, therefore, there can be a techne of teaching,[3] it must be the production of some state of mind, or skill, or ability or state of knowledge, in the students whom I teach. The only thing we have to do is determine what state it is I hope to induce in this way; then, the degree of "vision" and "technique" (in the narrow, modern sense) should become apparent.

Unfortunately, it was here that my difficulties began. What was I trying to produce in the minds of my students? I identified a number of possibilities, all of which seemed to me to be too limited in scope:

1. Information - students should leave my classes better informed about the law I was teaching them; they should know what the statutes said, what the cases decided, what interpretations theorists had placed upon the cases, what matters were already settled and what was open for theoretical debate.

2. Inculcation - students should be better able to cope with the demands of being a lawyer - they should have assimilated and identified with the values accepted by practising lawyers, they should have the basic know-how which would enable them to find the rules of law they needed, and the basic personal qualities which are necessary for dealing with clients in a professional relationship.

3. Skills - students should be familiar with the various tasks that lawyers perform, and be able to perform them as a result of practising the necessary skills in class.

I felt that, within certain obvious limitations, I could and did aim at all of these goals. But I also felt distinctly depressed at the prospect that this was all that I was doing.

Let us take information, for example. "Imparting information" is (dare I say it) basically a rather dull process, both for the teacher and the student. In law, we do it best by handing out materials in advance; the lecturer then tries to stimulate interest in the materials by speaking in an excited way about certain aspects of them, asking or inviting questions about the material, showing the students "knacks" or gimmicks to help him come to grips with the work. Up to a point, it gives one some satisfaction. But these days there is a certain ephemeral quality to what we are expected to impart: it is difficult to see it as an end in itself, when in five years time the information imparted may well be obsolete because lawyers will have found entirely new ways of looking at the same problem. Moreover, the injunction to "tell the students something about the law as it is", does not help to solve the pressing problem of selection; on what basis should particular legal topics be selected for discussion?

Inculcation of values and teaching skills (which to some extent overlap) are rather more fun, especially if the values or skills we choose are controversial, or of a highly challenging, intellectual character. But as a seasoned University teacher I am somewhat disturbed at the prospect of measuring my success by the extent to which the students adopt the value structure I seek to saddle them with, or the extent they are able to "do things" without seriously questioning the procedure they are following. Again, there is the problem that present-day techniques may be quite useless tomorrow, and also the question of how to select appropriate values and skills to be inculcated.

What I am really trying to produce, I told myself, is the "educated man". Brushing past the apparent circularity in this definition, could I state the abilities that such people possess? I suppose the essential difference between them, and those who have been taught only information, values and skills, is their independence; that is, their capacity to make up their own mind whether they agree with facts put down before them, whether they adopt the values that are urged upon them, whether they apply the skills they have been taught. Now, there are two ways that such a person can emerge from a law school with that capacity - because of the law school, or despite the law school. There are some who say that such a capacity is unteachable, the students will either find it for themselves or they will never have it at all. If that is so, and if the emergence of such people is the desired end of a law school, then teaching is not an art or skill at all: there is no rational direction of effort towards producing a desired end. So, if we assume that law teaching is an "art" or "skill", we must reject that view; and we must believe that there are things we can do to help develop the capacity for independence.

In one sense, this observation is trite; this is what Universities have been doing since their inception. For my part I suspect that while it is what universities (i.e., university teachers and administrators) have said they are doing, in their actions they portray a quite different reality. How can it possibly encourage independence, to lecture to people for fifty minutes at a stretch? How can a man or woman be taught to trust in their own judgment, when their entire year's achievements will be judged by someone else as a result of what they have written in three hours? The procedures we adopt are convenient, comparatively inexpensive, and generally accepted by the students, as well as approved of by society as a whole. Perhaps they are forced upon us by circumstance; our masters and providers would scarcely tolerate a system under which students were free to make their own decisions about how well they had succeeded. The point is, though, that the system is not working for the teacher who wishes to encourage independence among his or her students; if anything, it is working against him. It does so in a number of different ways; I have mentioned two, but there are others as well.

I suspect this contradiction between the myth and the practice, points to a much more fundamental flaw in the whole theory I have been putting forward. There is a radical, inherent contradiction in the idea of producing something which is to become independent. By skilfully manipulating the system within which I operate, I can make sure that information is imparted and values and skills inculcated. There are many books on "teaching skills" that talk about the procedures I can use, and how to put to best advantage such things as lectures, tutorials and examinations. They are the tertiary teacher's essential tools of trade. But there is a great gap between what they are designed to do, and what I as a teacher would like to achieve. If I am to achieve that goal, I must superimpose on to the standard techniques, something other than technique.

I think there is quite a lot we can draw from the old view of "techne", the unity of art and technique. The two, even if theoretically separate, are in practice greatly intertwined. Moreover, they are both involved in a conscious endeavour to bring about a certain end, or state of affairs. But beyond this, I regretfully give up the attempt to explain modern day teaching in terms of ancient concepts. So, abandoning the pretence of modesty, I plunge into the question, whether teaching can be an "art" as we understand the term today.

ART

Let us suppose X is a teacher who has (I fear, sporadically) attended the usual courses on how to give lectures and the like, and has through some years' experience cultivated a reasonably clear teaching style, an ability to put together informative materials, and a fair proficiency at conducting tutorial groups and setting and marking examinations. Let us suppose also, that X has some quite visionary ideas about his subject, in which he is well published and regarded; and he shares these insights with his students whenever he can. In other words, X is as far as his Head of Department is concerned, a paragon of virtue and an ideal candidate for promotion. Is he also an exponent of the art of teaching? Or is something missing?

The analogy that comes to my mind is that of the master chess player who is ideally equipped to make it all the way to the top, but for some inexplicable reason never does so. He is a master of technique; that is to say, he has taken the trouble to study all the well-known positions, and if they recur in his games he will know how to go about coaxing a win or a draw out of them. He is also a respected theoretician, that is to say, he has developed a deep and original understanding of the game, and has made a number of contributions to its literature. But when he sits down to play a game of chess, he cannot bring himself to terms with the fact that this is not a test of theoretical knowledge, but a struggle between two living players. His strength is his judgment in the abstract; when applied to the task of conquering his opponent, it falters. In other words, all his learning and skill is devoted to his relationship with the game of chess, and none of it to the relationship he has with individual opponents.[4]

In the case of the chessplayer, of course, such a limitation becomes rapidly apparent; because chess is first a competitive sport, and only secondarily an object of study and original thought, any chess master who notices this weakness (and it becomes very obvious to him when he loses his games) will do something about it. In the University and similar institutions, however, one hesitates about calling the analogous limitation a weakness. The University "lecturer" owes his first duty, it seems, to the advancement of knowledge and theory in his own discipline; being an exponent of the "art" of teaching (as opposed to being merely competent) is by no means the essential or paramount quality required to justify one's existence, still less one's case for promotion. From this point on, I can only speak to those who want to develop their talents in that direction; to those who find that, as their mastery of the theoretical aspects of their discipline has grown, their sense of purpose and satisfaction has diminished. These people may find that they can help the situation by looking beyond mere competence in teaching technique, towards teaching as an end in itself.

So far, I have defined the element that is "missing" in the make-up of our paragon of virtue, by analogy rather than by description; and the most I have said by analogy, is that teaching is above all an interaction between teacher and student, in which creative art is possible. I am not at all sure that I want to try and define what that creative art consists of, because it will be so many different things to each exponent of the art. The most I can say is that it happens between people; mostly, between the teacher and the student, sometimes between students or different groups of students. However, perhaps I may say something of the direction that my own law teaching would take, if I were permitted to see it as an art; and what would be the essential pre-conditions for teaching of that kind.

As a description of art, I find the following passage from the work of William Blake, the visionary artist and poet of the eighteenth century, difficult to surpass:

> "The great and golden rule of art, as well as of life, is this:- That the more distinct, sharp and wiry the bounding line, the more perfect the work of art: and the less keen and sharp, the greater is the evidence of weak imitation, plagiarism and bungling. Great inventors in all ages knew this. Protagenes and Appelles knew each other by this line. Raphael and MichaelAngelo, and Albert Durer are known by this, and this alone. The want of this determinate and bounding form of evidences the idea of want in the artist's mind, and the pretence of plagiary in all its branches. How do we distinguish the oak from the beech, the horse from the ox, but by the bounding outline? How do we distinguish one face or countenance from another, but by the bounding outline and its infinite inflections and movements? What is it that builds a house and plants a garden but the definite and determinate? What is it that distinguishes honesty from knavery but the hard and wiry line of rectitude and certainty in the actions and intentions? Leave out this line, and you leave out life itself; all is chaos again, and the line of the Almighty must be drawn out upon it before man or beast can exist."

Time and again in legal research and teaching, we find that the "line" of differentiation between various cases, as it has been drawn by statute or by the judges, is blurred and unsatisfactory. This is because the underlying considerations of justice are inadequately catered for by the description of the law the judge has given. Our first task is to neutralise the unsatisfactory description: to show that the judge's pronouncement is not authoritative, or has insufficient meaning to qualify as a legal rule. The next and more rewarding task is to search, by argument and hypothetical example, for the "distinct, sharp and wiry line" which will form the basis for discrimination in future cases. Sometimes, what emerges is an entirely new rule, which we may propose as an alternative to the one handed down to us. On other occasions, the situation is too complex for rules, and we have to set up elaborately structured judicial discretions which allow a judge, by working through various significant features of the case, to give effect to "infinite inflections and movements" in the shapes that cases may take.

This is an account of art in legal research; but how can it be a description of art in legal teaching? I think it is necessary to take a further step. I must present the process to the students in such a way that they work through it themselves, and attain their own view of the "distinct, sharp and wiry line", recognising at all times that their perception of it may be different from mine. This, after all, is what a picture or a poem does: it invites you to be active, to pour your own energy and vision into looking at it or reading it. It is regrettably true that what often passes for "good teaching technique" - clarity, precision and forceful presentation - may actually interfere with the student's active perception of a problem, by taking away lines of perspective the student would himself have adopted if the teaching approach had been freer. I suppose that we have all had the experience of teaching the same subject in two successive years, and finding that the first year's students turn out to be the more enthusiastic and capable, even though in the second year we ourselves understand the subject much better and are more proficient at using teaching devices to "put it across". I used to put this down to variation in abilities and group inter-action from year to year, but now I am not so sure; I will return to the point later.

We have to be sure, of course, that the material we put before the students is capable of supporting the weight we hope will be put on it. There are two aspects to this, one general and one specific to teachers. We must not portray a barren landscape; it must be sufficiently rich in possibilities that a student can work through it to find a clear line, after devoting sufficient effort to the task. If we are talking about a series of topics, they must also be selected so as to give a variety of different perspectives. This, after all, is what any artist does; he does not paint a picture of the first thing that comes into his mind, nor, if he gives an exhibition, does he present fifteen pictures which require exactly the same type of effort to come to terms with them. The second aspect is that we have some responsibility to see to it that the students are capable of grappling with what is before them. Unlike the artist, we do not speak to the general public, which can take or leave what it is given; we speak to a particular group of people whose education has been entrusted to us. Thus, we have either to adjust our material to the existing abilities of the students, or else to ensure that they know how to raise their abilities so as to come to terms with the work.

I am aware that what I have just said involves me in making the very claim, for university teaching, that I had originally hoped to avoid; and that my neck is firmly on the block ready to be severed by any passing sceptic. I do not doubt that criticisms can be made of my position, and perhaps I should myself voice some of the doubts that I feel about taking it.

(i) Does the subject matter itself need to be an art?

Can one exercise the "art" of teaching, when what one is teaching is not itself an art? I do not know the answer to this one. Logically, perhaps one could, but I suspect that in practice it might be very difficult. If the discipline concerned is one in which a "correct" answer can be reached, for instance, by the application of logic alone, or by direct sense perception or experimentation alone, then the "artist-teacher" might have difficulty in getting anyone to go along with other ways of looking at the problem. He or she would probably have to extend the ambit of the subject itself, by exploring the validity of the logic or the reality of the perception; or else to select other related problems where the answer could not be so easily obtained. In either event, they would run the risk of being criticised by established practitioners of the discipline, who would claim that this approach was too "theoretical" or academic". On the other hand, this process is likely to happen in any event if an established discipline is entrusted to the University to teach and expound; perhaps there are few disciplines that are not inherently capable of providing the complexity and ambiguity which I have associated with teaching as an art.

The question is a particularly acute one for law teachers. It would be probably true to say that "the law" is not highly regarded by artistic persons as offering scope for their talent. Often, the law is seen more as a stumbling block which gets in the way of the creative artist; the paramount symbol of all that is unthinking, conservative, and deaf to the wild calls the future makes to sensitive men. Nor do we find much in our philosophy of law which might prepare us for the idea that lawyers are creative, artistic people. As a student, I was brought up in an environment that was basically "positivistic", that is to say, I was encouraged to believe that law is what is laid down by statutes and the judges, and the lawyer's task is primarily to find it, then get his client around it if he can. As an alternative, I was offered "natural law" theory, which was basically a throw-back to mediaeval views about the unity of the legal and moral structure of society (how else could anyone support the view that the voice of the Church of England embodies all that is good and right in English society, which more than one eminent advocate of natural positions seems to have espoused!?) On such a view, any creativity in the subject was derivative, and came not from being a lawyer (which was what one was trained to be), but from being a moralist (which one was left to work on for oneself). Small wonder that the more sensitive of my colleagues were beguiled into the ways of the historian or the sociologist; they saw creative significance in their role because they related an established law to the historical and social facts of their time. Without in any way underestimating the insights which were to be attained thereby, I personally had some difficulty with this approach as a suitable philosophy for a lawyer. To one committed to the view that law was a moral force in society, that approach was like being in a raft in a shark-infested sea, and deciding one should dive off the raft so as to get a shark's-eye point of view. There were, of course, a number of other philosophical diversions, all of which held their fascination; but they provided only a means of talking about law, and not a philosophy for doing law.

I make these comments, not by way of criticising those who taught me; they managed to rise above the prevailing jurisprudential sentiments of the time and produce, in various ways, creative and sensitive improvements to our law and our ways of looking at particular parts of it. I do so because it illustrates how the philosophy of one's subject may be positively inimical to any creative role one may feel impelled to play in it. There are all kinds of reasons for this, not the least being the tendency of all of us to worship the "expert". If we want art, we look to the artist. If we want philosophy, we look to the philosopher. The artist or philosopher's view of our own discipline may well be less than flattering; his views of a discipline of which he has little knowledge may work its way into our opinion, along with his excellent art or philosophy. We alone know the depth of our own subjects; we must trust to our own instincts in deciding whether they provide the opportunity for creative art.

(ii) Elitism and defence of petty bourgeois values?

Here again, I am aware of the bad press that law usually gets, this time from advanced thinkers about society who, espousing a Marxist viewpoint, see law as an instrument used by the class in power to consolidate its subjection of the other classes. One has to concede that, on the surface, this thesis has attraction; there are certain aspects of law which, even taking the most charitable of interpretations, tend to a preference for more conservative and traditional values in society. Let us suppose (contrary to what, I am sure, some critics assume) that the law embodies the results of an ongoing process of working out conflicting values in society. The materials we work with are clearly the product of the past, which we have to apply as best we can to the present and the future. It is very easy for a legal scholar, who has steeped himself in the history of his subject, to absorb the values of past ages to the exclusion of modern values. The golden age of the law of contract, for example, was the nineteenth and early twentieth century, coinciding with the political and economic philosophy of laissez-faire; it is very interesting to see this basic philosophy lying behind even modern writing on the subject. Moreover, our system of judicial appointments is such that the High Court bench consists of people who are middle-aged and older; people whose intense involvement in trials as counsel has ceased, with some judges as many as twenty years ago. The law thus projects a rather "priestly" image; the "grandfathers" of the tribe dispensing their version of justice, using the ritual incantations of past ages to justify present results.

Critics also say the law is warped because those members of the dominant classes who bring cases before the courts have an apparent double advantage. They have the resources to bring such cases, while the less wealthy are not as well able to afford the expenses of top quality representation, and even perhaps of bringing a case at all. They can also, in the course of appealing to previous precedents, draw support for their own position, from value judgments made in a past age. I would not, for my part, be able to say whether (as I hope) this is more appearance than reality; I have never collected evidence (I don't know how I'd go about it) on which to form an opinion on whether New Zealand judges and juries are significantly influenced by better prepared, or more expensive, advocacy, and whether they are more likely to follow social assessments made by society in the past, than to apply current social values. I am inclined to think not. Critics of the law, however, can point to these outward appearances of the law as showing that the materials we work with reflect, not the truth which shines through art, but a basically flawed value system which is at best a tool for others to abuse, at worst a conscious subversion of the traditions and majesty of the law.

It is difficult to respond to these criticisms honestly without conceding that they may have force. The best response I can make is that for my part I try to inform myself of both the past and the present, and take from each what I regard as truly appropriate; and that I believe other people I know who are, at various levels, trying to make or influence the law to do the same. I know no other way of doing law; if you reject completely all the procedures, legal techniques and principles which have been developed in the past, you lose a great deal which is of value to the new age. I believe that these principles outlive the forms of law in which they are first embodied; for instance, that lessons learnt in applying rules of property fairly, might well be "transferred" into a propertyless society where courts or administrators have instead to adjudicate on the respective responsibilities of different officials or groups within a unitary economic or political structure. But I have to admit that my beliefs and methods of approach are not clinically scientific; I have no white coat which will ensure that I avoid "contamination" from the material I study.

My only consolation (and one which is most relevant to this paper) is that the artist too exposes himself to the same criticisms. Only the greatest artists, I suspect, can liberate themselves from the milieu in which they work; the rest perform a useful and in the main unspectacular function within the confines of their immediate surroundings, seeking like the rest of us to erect some kind of buffer from the vicissitudes of economic life. Thus, it is illuminating to find an exponent of Marxist literary thought describing how the term "literature" came to develop elitist overtones, upon an initial meaning of "able to read" or "able to be read". Building upon shared assumptions about what is aesthetically pleasing, "literary critics" and others managed to erect a tradition which eventually excluded such genuine creative work as did not meet their own criteria, which were basically criteria of the middle class.[5] This type of thing, however unwelcome to the idealistic, is a necessary concomitant of artistic endeavour; some people may be able to overcome it better than others. And if only that can be art which is incapable of being abused and prostituted, then where in the world shall we look for it?

(iii) Lifeless repetition

My last question brings me back from fine pronouncements of theory to what I hope I will be forgiven for describing as the grim realities of teaching in a university; perhaps they are even grimmer in some other tertiary institutions. Every week of the teaching year, on Tuesdays and Thursdays after lunch, I shall go to room 10C 13 and instruct the same group of students. My materials were revised last year, but basically they cover similar ground to those of 1974, the first year I taught the subject. True, I could have changed them, but that would be sheer madness, if they work reasonably satisfactorily the way they are; I have too many others calls upon my time. Let us suppose, as I have suggested, that in 1974 my materials were "art" and that my teaching in that year was fresh and creative. But how can it remain so, under these conditions? Each year of teaching gives its overlay to the next; in each year, what was a promising discrepancy or a useful blunder is ironed out so the students get an increasingly flawless performance; each year, student contributions are more adeptly guided in the direction I think that discussion should go. In other words, the creative spark which once enlivened class and teacher is gone, and iron technique reigns supreme.

I think it is here that expertise in teaching technique has a great contribution to make. The teacher who stands up in front of thirty, forty, or even upwards of fifty students needs a great deal more information about what is going on out there than he currently gets. I am not here talking about "eye-catching techniques", about how to avoid (or interpret) the throwing of paper darts, or even that exhilaration you occasionally get when you feel that every eye is upon you as you speak, every ear straining to hear what you have to say. I am talking about the feelings of conflict, of disagreement, of uncertainty that occupy a student's mind for a good half of the time he is listening in class. We know they are there; we have experienced them ourselves as students or merely as listeners, we find evidence of them in the test and examination papers we read. We address our teaching towards them, but in general, in the abstract; we do not and cannot address this particular class.

One move that law schools have made is so-called "Socratic dialogue". Avid followers of the "Paper Chase" will recall Professor Kingsfield ruthlessly grilling his students; even if they are frightened out of their wits, at least he finds out something about them, as well as goading them to unending agonies reading their cases the night before. But think about the atmosphere in the class. How did Hart and his friends get their kicks? When they came up with the answer the professor wanted. Even if sometimes they outwitted the professor, the answer they gave was still the kind of answer he was looking for. So they never said what they felt, except in those highly emotional and implausible scenes where a particular student suffered emotional trauma and tried to break out of Kingsfield's iron grip. Modern "case method" is perhaps more sensitive; perhaps there is a greater recognition that the student's reponse is valuable in itself, both informing the teacher about where the students are at, and serving as a focal point for other students' thinking. But there is never enough of it. Moreover, who is the student who will voluntarily speak out in such circumstances? Very often, not your "representative" student, who rests secure in the knowledge that he need not speak out because he would be adding nothing to what his fellows already know and agree with. No, your speaker is often the maverick, the man who is used to being in a minority; his comments, valuable as they are, do not give you the mind of the class.

I must here break off and confess that I have no systematic way of bringing students into class discussion in sufficient numbers to get a representative cross-section of views, or even a way of encouraging students to overcome their shyness enough to tell me what they do think. Sometimes it happens and sometimes it doesn't. I am envious of those of my colleagues who say, or of whom it is said, they have no problems in eliciting class discussion. When I looked into the literature on this, a couple of years ago, there was disappointingly little work done. Surely, there is a great deal of material on how to make a tutorial go well; but we can afford to take a more relaxed attitude towards tutorial work, when the "substance" of a course is dealt with in lectures. Even in advanced study, small group work can easily dissolve into the "master" (i.e., the teacher) surrounded by the "disciples" (i.e., the students), which is not terribly good for the dynamics of the discussion. I have read very little that has much direct relevance for the large class of thirty to a hundred or more; I suspect that many educators believe that two-way learning is just not possible in such circumstances.

I think that better teaching techniques, and electronic gadgetry, will in due course overcome these problems. We have in the first place, to obtain a level of commitment from the student audience, for or against certain competing propositions; and to be able to relay to each one, where they stand in relation to the whole class. This can be done, even now, if we used the right equipment. The technique - or even possibly the art - would lie in knowing what kind of questions would be likely to bring about a division of view, and at the same time lead to a constructive dialogue in which information can be introduced and related to the different viewpoints. It would also tell us how we should balance contentious issues (as initially introduced, and added to or refined as discussion proceeds) and information and comment thrown in by the teacher. If we can use these techniques to heighten our awareness of the class which is actually sitting in front of us, and to strengthen the student's realisation that for every proposition they hear, they must each be either for it, against it, or consider it not relevant for good reason, then we might overcome the problem of repetition. I think that teachers would find each class they teach very different, and it would be easier for them to take on a new creative role, rather than approach which is pre-conditioned by past experiences of teaching the same subject.

There are, of course, other and more accessible methods of breaking the monotony of routine teaching. Try sharing a course with a friend, giving him different "spots" each year. Take up invitations to give "guest lectures" in your colleagues' classes. Invite your students to introduce some topics, or to solve problems in small groups. Welcome the opportunity to teach your favourite topic as part only of a large subject. Teach it at different levels; it will look quite different, depending whether you have a first year or a third year class in front of you. Above all (and this is advice which you can tell I have not been well able to take myself) change your subjects from time to time!

Conclusion

I hope I have not made undue claims for my profession; I have spoken of what is possible, rather than what I personally have successfully put into practice. What I have tried to say is that, although "art" is a very elusive term, we may be helped by drawing some analogies to it in describing our function as tertiary teachers. We are surrounded by men of "science", and a growing body of literature about "teaching techniques"; we may be in danger of being intimidated, so that we seem smaller than we really are. The whole point of art is that it does not produce guaranteed results, it requires involvement by the viewer, reader or listener as well as the artist, and it cannot be practised in a detached, clinical way. At the same time, art is intimately linked with technique, because sound technique makes possible that which would otherwise be merely a grandiose folly. Moreover, what for one generation of teachers may be so little understood, and so rarely achieved, that it must be called an art, may become so commonplace in the next that it can only be described as technique. So we cannot discard technique altogether; but we may find particular techniques more limiting than helpful, when we attempt to bring a broader vision to our teaching role. I believe this broader vision is appropriately styled "art", and it is essential if we are to overcome the limitations of our workplace and help our students to emerge as independent men and women.

NOTES

1. See R. Robinson, Plato's Earlier Dialectic (2d ed. 1953), 62-69

2. Bk. 6, ch. 4, Trans. Ostwald 151-152 (Bobbs Merrill 1962)

3. I hasten to add that this is my own interpolation, and not Aristotle's theory of education; cp. Post. Analytics Bk 1 ch.1, R. McKeon ed. (Random House 1941), 110-111.

4. See the discussion of the inter-relationship between theory and practice in Lasker, Manual of Chess (Dover 1960, 188-192

5. Outline in Art and Life, in The Poems of William Blake ed. W.B. Yeats (Routledge 1905, paperback 1979), 254.

6. R. Williams, Marxism and Literature (OUP 1977), 45-52.

MATTERS OF JUDGEMENT

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We are all familiar, I believe, with the paradigm which links interactively the assessment of students with the aims and objects of the education process and the learning situation. (See Diagram 1)

The paradigm is designed to illustrate the need to treat the assessment of students as one element in a complex process which is affected by the other elements and, most importantly, justifies assessment in terms of the influence it exerts in turn on both the objectives and on the learning situation.

An aspect of this view of student assessment is that the role of teacher (or lecturer or tutor) includes that of assessor and that assessment is indeed an integral part of the teacher's role.

Nonetheless, it is sometimes useful for a discussion such as we are involved in today to isolate the assessor role of the teacher and to focus on some aspects of it, while keeping the broader perspective in mind as a corrective.

The assessor of students in a tertiary education institution faces various types of assessment tasks, in a range of situations, and is required to make judgments which are determined and constrained by the educational and even the social setting in which the assessments are made.

Three overlapping but separable assessment situations come to mind. (See Diagram 2)

An example of a 'partial' situation may be one in which the goal of the assessment is to determine the student's competence for continuing study in a field, a subject or a course. By 'Limited Terminal' I mean a situation in which the assessor need to answer such questions as 'Is the student knowledgeable or skilled in a given field'. By a Terminal assessment, I mean the kind of assessment which involves the giving of an imprimatur of competence for professional or technical practice.

Obviously these are overlapping categories but they do represent some sort of a temporal hierarchy to which a student is subjected as he progresses through a diploma or degree course. Another categorisation of the assessment process relevant to our discussion is in terms of whether they involve bodies of theoretical and practical knowledge or sets of theoretical and practical skills as in Diagram 2. above.

It is the overriding theme of this discussion, that, whichever of the above dimensions of assessment we are considering, judgments, often, in fact usually, subjective, need to be made, involving all aspects of the assessment process. Further, it is not the purpose of the 'technology' of assessment to eliminate subjectivity from these judgments, but rather to rationalize the process of assessment, so that we can draw some valid and reliable conclusions from it.

A brief digression at this point on what I mean by 'subjective' judgment might be in order; the word 'subjective' needs to be examined. The shorter Oxford as usual offers any number of meanings which can be used for whatever purpose one has in mind. I am using the word here in the third sense set down in the S.O.E.D. as: "Relating to the thinking subject; proceeding from or taking place within the subject; having its source in the mind." Subjective judgments clearly involve thinking by an individual and it is this thinking which determines the judgment given by the individual assessor.

We now need to look a little more closely at a critical issue. What exactly do we mean when we say that student X is knowledgeable or skilled in subject Y, or is competent to practise profession Z?

Clearly it is not the trivial point that a particular assessor A believes it to be the case. For if that were the case all assessments would be totally valid by definition.

What I believe we really mean is that assessor A, in making his judgment, is to be seen as a representative of a class of assessors equally competent to make the judgment in question. Whereas any particular judgment made by assessor A, may be at best a carefully considered one, or at worst an arbitrary or idiosyncratic one, its significance is the extent to which it can be considered as representing the set of all possible competent relevant judgments. In other words, its generalisability beyond the view of one person, however competent.

In fact the whole range of structures, techniques and procedures surrounding the assessment process is based on the need to ensure at least two things:

First that the assessment by one assessor may be interpreted as that of competent assessors in general.

Second that the judgment made by an assessor at a given time may be generalised as being that particular assessor's judgment independent of when or where it was made.

The whole technology known as Educational Measurement has been developed to formalise and even ritualise the subjective judgments of which I have been speaking and to provide an aura of apparent objectivity to the judgments in the form of numbers, letter grades, descriptive comments or pass/fail and other dichotomies - a sort of system of frozen or congealed judgments.

In the light of the above comments, let us take a look at some aspects of this technology.

One way of approaching the issues of interest to us is to categorise the variables with which we are concerned into two broad classes, which we can label as Task variables, i.e. those centred on the student, and Assessor variables. (See Diagram 3)

In noting the student-centred task variables, we can now add a third shift or generalisation involved in the assessment process to the two previously referred to, that is the shift from a particular performance of a task by a student to other, equally relevant performances on equivalent tasks by the student.

This third shift also brings with it a whole panoply of technical considerations in the domain of educational measurement.

It is out of these shifts from a single assessment by a single assessor to the point where a meaningful comment can be made about a student's knowledge and skills that, for instance, the whole literature on the validity on reliability of assessments stems.

We need to examine these concepts in some detail, but before doing so two almost self-evident points need to be made. One is that no assessments are wholly reliable or valid and it is unwise to speak of valid and reliable assessments. The second is that the terms have little meaning unless we know what use is to be made of an assessment in question. Reliability and validity data have no absolute meaning independent of their educational use and this fact is far too often neglected in interpreting assessment data.

With these things in mind we can take a closer look at the terms reliability and validity.

Let us assume that a judgment is made and it is expressed as a number or letter grade - a B, say. This judgment is based firstly on a particular set of the student task variables already referred to - for example a set of essays written weekly during the year, or an assignment, or a multiple choice test. Secondly, the judgment is based on a particular set of assessor variables - e.g. on a double marking by two independent assessors on a 5, 10 or 20 point scale. The marking may be based on a set of answers agreed to by the assessors or the criteria may be left entirely to the wisdom of each assessor.

The extent of our confidence that the same assessment, the same mark value B, would emerge if instead of choosing one particular set of values of appropriate task and assessor variables we had chosen any other appropriate set, is broadly the measure of the reliability of our assessment. For example, if we had chosen a different sample of relevant questions, or a different time or timing, or at the assessor end, a different examiner, any of these carry some aspects of reliability with them.

Anyone familiar with the literature will be aware of the very large numbers of 'reliability' coefficients availble from which one can choose. Here again we are left with the fact that we must use our judgment in deciding which particular constellation of variables are important for us, this in turn determining the particular 'reliability' of substantial interest. For instance, if we are dealing with a situation in which the judgments at the marking end are particularly subjective, as happens for instance if students have been asked to write essays, it is the inter-marker reliability which is obviously of great interest, whereas if we are dealing with a multiple choice examination inter-marker variation is not an issue.

So there is no such thing as the reliability of an assessment, but only the reliability of an assessment within clearly specified and appropriate conditions. It is I believe a fair criticism of the theoreticians who work in the technology of educational measurement that there has been far more work done on refining the mathematics of reliability formulae than on the elucidation of their relevance and application in real-life educational situations.

However, while a reasonable degree of confidence in the repeatibility or reproducibility or stability of an assessment is necessary, it is not sufficient. In making use of an assessment we must certainly have some faith in its reliability. But if we are to use the assessment for an educational or social purpose, whether it is a partial, or a limited terminal one, or for making a statement about professional competence, we need to know something more.

We need to know the extent to which we can be confident that the assessment is serving the particular educational function we have in mind. If, for example we are involved in a chemistry I assessment devised to determine whether a student has acquired the knowledge and skills to undertake further chemistry studies, that is one possible educational function. It is a quite different one if we are interested in whether the student can be let loose in a chemical factory to learn the very specific skills required to control the quality of chemicals used in the factory.

The validity of an assessment is then broadly the extent of our confidence that it is doing what we want it to do, that it is giving us the information we are seeking. If we want to predict whether a student will do well in a science course, a prior assessment needs to be designed with that purpose in mind and its predictive validity is determined, not by whether it looks right, but the extent to which it predicts what we are interested in knowing.

As for reliability we have a range of validities and once again I believe that in discussing these matters, those who are in the practical business of teaching and assessing, have some reason for dissatisfaction with the work of the specialists who have too often avoided coming to grips with the important substantive issues.

I would like to try and clarify some of the issues I have alluded to by detailing one or two concrete examples.

This is not the place for a comprehensive analysis of such matters, but I hope the following instances will be of some value and interest. Some years ago while working on the commonwealth Secondary Scholarship Examination, a number of us were faced with the problem of assessing the ability of students to express ideas, views, feelings, etc. clearly in writing. Furthermore we faced the task of attaching a numeric to this ability so that candidates in the examination could be compared one with the other; the first task was very much an educational one, the second stemmed from the social purpose associated with the examination. At about this time, incidentally, a similar task faced the examiners in the HSC English examination in Victoria; the assessment of written expression was a major objective of that examination. The English examiners solved the problem by setting a relatively long essay and having it marked once. As there were many thousands of candidates, the number of markers was of course large. To tackle our own not dissimilar problem we looked at what I have referred to as the task and the assessor variables. We had evidence from earlier studies that students performed quite differently on different tasks - some responded well to one stimulus to writing, others better to another and so on. This suggested that two tasks or essays were better than one, three better still and so on. However, all other things being equal, (in particular the assessors, and how they assessed) there was a law of diminishing returns - two essays were more useful than one, three still more, but by a lesser extent and after four the increase was not sufficient to weigh against the logistic and financial problems in the chase for marginally greater validity and reliability. Going back to one of the other task variables, we also knew that four essays written at different times would be better i.e. lead to greater reliability than four done at one session. Logistics forced us to abandon plans to have the essays written in the schools, and even an arrangement to have the four essays written at four different sessions in the two-day testing period proved unacceptable.

As often happens, we had to exercise critical judgments in deciding which issues were central to the improvement of the reliability and validity of the assessments and which were relatively marginal. The former required persistence and determination; the latter could, if necessary, be sacrificed.

Turning now to the assessor variables, we experimented with a range of scales before settling on a 0-5 scale (expressed as A+ through A to E); as expected we found that more than one assessor for each essay was better than one, and that the measured reliability increased marginally with every additional marker. We finally settled on two, with one important proviso; as each candidate's four essays were to be marked twice, the reliability was increased if each of the eight assessments involved was by a different marker working independently of the other seven, and without any knowledge of the mark awarded by the others. Under these conditions, an optimum result was obtained.

The question of interest is, what do we mean by an optimum result?

I spoke earlier of the concepts of reliability and validity as applied to assessment. The two concepts can actually be condensed into one. As in the example I have been discussing, we start with samples of student performances with respect to a particular trait and we wish to generalise from these samples to the wider universe of the trait called 'writing'. By adopting the procedures I have described we confirmed that we were able to make such a claim, within acceptable limits. By that I mean that we were able to show by experiment that for a randomly selected group of candidates the resulting aggregate of eight assessments correlated to a high level with the sum of eight assessments for the same group of candidates assessed by a totally different group of assessors. That is, we could be reasonably confident that if any other collection of markers had marked a particular candidate's work, he/she would have got almost the same aggregate mark, and further that in the judgment of a random set of qualified and experienced assessors, that aggregate mark is a valid assessment of the candidate's competence in 'writing', since it was about such competence that each of the assessors was making a subjective judgment based on his or her understanding of written expression.

I have detailed some aspects of this activity at some length partly because it illustrates the way in which for particular purposes the problem of determining procedures for assessments needs to be thought through in terms of the aims of the assessment and partly also because the technique of multiple independent assessment outlined is a very useful one when a reliable and valid assessment is required in the many assessment situations where the individual judgments involved, are by their nature subjective.

A second example that I would like to refer to briefly relates to the problem of sampling content and process objectives I referred to under the Task variables heading. Many of you will be familiar with the idea of a two dimensional grid, outlining the proportion of content and process questions as a guide to the assessor (and to students). (See Table 1)

In terms of validity the basic function of such a grid is to ensure that the examination in question reflects as faithfully as possible, the aims and objectives of a course of study.

In practice, it can prove a more interesting and exacting exercise than might at first appear. I have recently had occasion to use the technique in circumstances where 5 or 6 experts from different states prepared a grid for an examination which was to be one of a set of hurdles for overseas professionals wishing to practice in Australia. What emerged from the exercise was the fact that experienced teachers, working on the same set of stated objectives, each developed a sufficiently different grid for testing these objectives, so that quite different examinations would have resulted had they set them independently.Quite substantial and salutory discussion was required before a consensus could be reached for a framework for the intended examination. In several instances in the course of this exercise it became evident that even where a seemingly precise aim was stated, it was interpreted quite differently by different experts. Their judgments of the same texts were different and a more reliable and valid examination could only be based on a pooling of their expertise.

This highlights incidentally the problem many students face - that having undertaken a course of study for an examination, their expectations of an appropriate 'examination' is often markedly different from that of the examiner who sets it.

I have elaborated these two examples, one from the setting end of the assessment process and one from the marking end to illustrate the extent to which individual consensus judgments are involved and the need to adopt procedures to ensure above all that the basic objectives of the assessments are realised.

The lesson from all of this, in sum, is that the assessment of students involves a range of judgments, often subjective, at all stages of the process. We should not pursue the will o' the wisp of some pseudo-objectivity but should accept that subjective judgments are central to the assessment process and try to design a pattern of procedures to convert such individual judgments into acceptably reliable and valid ones.

Ironically what seems to happen all too often is that having achieved a pattern of numbers, or letter grades or whatever, we have let these take over; far too often these numbers seem to develop a mystical life of their own, constraining our decisions and increasingly forcing us to undervalue our own ability to make appropriate decisions based on our knowledge of the courses and the students who undertake them. While the technology of educational measurement is a useful tool, it is a poor master and we need to be vigilant to ensure that the means we have designed to help us do not determine, obscure or distort the ends.

DIAGRAM ONE

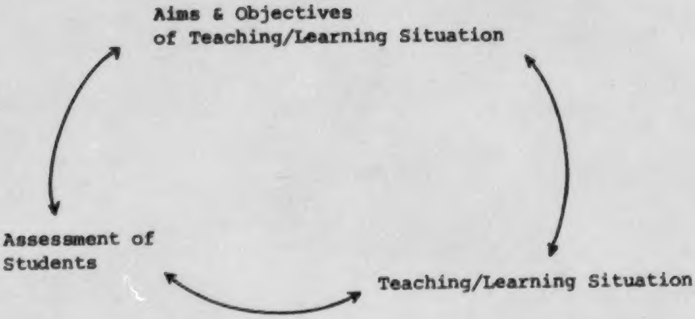
Aims & Objectives
of Teaching/Learning Situation
Assessment of
Students
Teaching/Learning Situation

DIAGRAM TWO

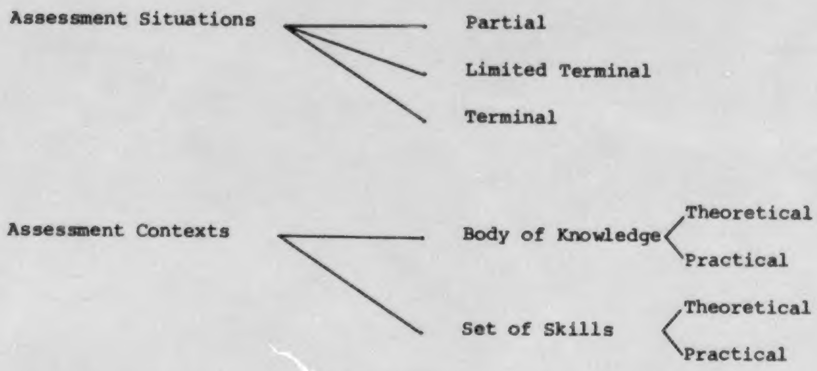
Assessment Situations
Partial
Limited Terminal
Terminal
Assessment Contexts
Body of Knowledge
Theoretical
Practical
Set of Skills
Theoretical
Practical

DIAGRAM THREE

TASK (STUDENT) VARIABLES

Sampling of Content)
Process) of Assessment
Form)

Sampling of task type: essay
MCQ
Assignment
Project etc.

Frequency of assessment

Timing of assessment

ASSESSOR VARIABLES

Marking Scale

Marking Scheme

Numbers of assessors

Multiplicity of assessments

Statistical manipulation
e.g. scaling
standardizing

TABLE 1

Test of 50 Items

Process / Content	Knowledge	Comprehension	Application	Total
Topic A	12	6	2	20
Topic B	6	2	2	10
Topic C	3	4	8	15
Topic D	3	2	-	5
TOTAL	24	14	12	50

THE BASIC ELEMENTS OF TEACHING AND LEARNING IN HIGHER EDUCATION

BARBARA FALK,
HISTORY DEPARTMENT,
UNIVERSITY OF MELBOURNE

When I was asked to deliver a paper to the Conference I refused because I had not been active in research into university teaching and learning for five years. The notes that follow were put together at short notice to fill a gap in the programme. They were intended to focus discussion on some points which had emerged from previous lead papers. They do not present a thoroughly developed argument.

I have had an abiding interest in the relation between peoples' thoughts and feelings and the practices (what they decide to do) in their lives and this has led to my study of history, pyschology, sociology and education. In my experience, it was generally agreed that the most basic element in learning and teaching in a university or in any institutional form of higher education is that students must bring questions to their studies.

Some people are fortunate: Questions arise in a challenging environment during childhood or what Einstein called 'the holy spirit of curiosity'is stimulated by effective schooling. If students come to higher education receptive but not intellectually self-movers the primary task of the academic teacher is to challenge them so that they acquire knowledge and skills for a purpose, to formulate and seek to answer their own questions.

That this is so, is an assumption that underlies all we say, write and do in endeavouring to develop a theory and to improve the practice of higher education.

There is a rider which is less often noted - Perhaps it can be baldly stated as: What must I know in order to decide what I ought to do? If your notion of an educated man includes that when he makes a choice he will be guided by reason, i.e. he will examine all courses of action open to him and not choose until he is satisfied that no new facts are accessible to him, and no reconsideration of previously known facts could change his conclusion: Whether the action is to report an experiment, to write an essay, advise a patient or client, or form a protest march. In short, if you think that an educated man is, in this Kantian sense, a moral man, then you will appreciate that for some students a moral impetus may generate the search for knowledge and skills. If this strand, the notion of right or good action, is absent and if higher education has not established a link between knowledge and skills and moral action, then this education has failed.

These two basic assumptions can be attached from various determinist positions. In what follows, it will be assumed that though the historian or the sociologist, or the pscyhologist, may perceive my thoughts and actions to be determined, it is of basic importance that I shall think, and act consistently with my thoughts, as if I were free to choose between alternative systems of ideas and alternative actions.

Professor Sutton early in your discussions directed attention to teaching as 'art' or science. The 'techne' of teaching, he said, if there can be one, must be the production of some state of mind or skill or ability or state of knowledge in the students who are taught. He went on to talk of what he considered to be 'the monotony of routine teaching' and to suggest some ways of mollifying it though he found an inherent contradiction in the notion of 'producing independence of thought'. He concluded that particular techniques of teaching may be more limiting than helpful when we try to bring a broader vision to our teaching role. He characterised the vision as 'the art' of teaching.

Perhaps a way of introducing the next step of my argument is to comment on the concept 'producing' independence of thought in our students.

We are all aware of the influence on education at all levels of the current wave of scepticism which affirms that 'truth' and 'knowledge' in both the physical and social sciences are relative yet we sometimes talk as if theories of education are self-contained, not as if educational theories are part of the pattern of the culture in which they are developed. They are part of the pattern of the culture in which they are developed. They reflect the contemporary ways of looking at man in society and are expressed in the set of categories through which the social world is interpreted.

Professor Malcolm raised this issue when he asked 'how should teaching and learning occur?. The immediate answer he said is 'To achieve desired ends'. But this answer leads to further questions such as 'What are these desired ends?'. From the point of view of the student, he said, one desired end may be to gain access to the world of learning and knowledge. From the point of view of the teacher, the desired end may be to impart knowledge. From the point of view of the community, a desired end may be the training of knowledgeable people for roles in society. From the point of view of the university a desired end is the maintenance and dissemination of knowledge.

Is the 'knowledge' which these four categories of persons see as a desired end the same'knowledge'?

A law student may want to understand how the legal system can form a framework for a just society. Jurisprudence may be central to his thinking and critical assessment of the functioning of the legal system his objective. Some, but not all, of his teachers may desire only that he acquires facts and skills necessary for earning a living at the bar or as a solicitor. Some members of the community may hope to recruit him to find loopholes in tax law. The academic board of the university may be primarily concerned with the coverage and level of intellectual sophistication of the curriculum. The 'knowledge' they speak of is not a fixed package.

But let us look a little deeper. In teaching an undergraduate course in Social Work, poverty and suffering may be presented to students as aberrations on the fringe of an otherwise contented community - in contrast poverty may be presented as an integral product of an integrally divided social order. In defining poverty and suffering as aberrations the teacher legitimates the status quo. The present order of society works satisfactorily except for the aberration of poverty which must be treated as a phenomenon to be dealt with without disturbing a functioning social order. The alternative, presenting poverty as a constituent part of a society so organised that it is necessarily divided into rich and poor, is by implication, to attack the social order.[1]

Some social scientists see teachers in higher education as active in maintaining the status quo. The content of what they teach is defined in such a way that it is compatible with the existing social order. This knowledge serves to maintain the hegemony of the ruling group. It is argued that the knowledge taught and learned in medicine, art, genetics,literature and even the units a statistician computes can be discussed in this way.

We can see why counter hegemonie positions in Australia have been aggressively anti-intellectual. 'Knowledge' to some who wish to change society is always some groups''knowledge'. In Australian society knowledge is the ideology of the ruling group. Ideology may be defined as a set of beliefs about the conduct of life and the organisation of society, a set of beliefs about mans' nature and the world in which he lives, a claim that these two sets are interdependent and a demand that these beliefs be professed and the claim conceded by anyone who is to be considered a full member of a certain 'social group'.

So 'knowledge' is what some group, the dominant group believes, and if a subordinate group acquires this 'knowledge' its members will continue to believe that they belong in a subordinate position in 'the social order'. They will believe the world is as it is described to them. Poverty is an aberration. It is not endemic to a capitalist society. To be poor is to be an outlaw in a functioning society.

Would you be prepared to accept that underlying Professor Sutton's perception of an inherent contradiction in the idea of producing an independent thinking student, is this problem of the nature of the 'knowledge' that is taught?

Since the university teacher has to select what is to be learned and devise techniques for facilitating learning and certify to the university and sometimes to a professional institute, that the prescribed knowledge and skills have been learned he has, as Professor Sutton has pointed out, no alternative but to assess students for learning his definitions and applying them within his conceptual framework.

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Having to assess in order to attest achievement is a check on the independence of students. Let us refresh our memory of what Mr. Rechter said about assessment and see how it fits into this discussion.

Mr. Rechter said that assessment procedures rationalise subjectivity and give an aura of objectivity to grades. The process of grading emphasises that the knowledge that is assessed is that of the assessor. A student may, in an examinable piece of writing, challenge the framework and definitions of the teacher. He has to do it exceptionally well to get a high grade.

If the assessing is considered *valid* the judgement of the assessor will tally with that of the group of his colleagues who are expert in the field, i.e. who agree with his definitions and his framework.

Mr. Rechter said that absolute validity is unobtainable. What we are seeking, he said, is acceptable levels: acceptable to whom? Perhaps, fortunately, or perhaps unfortunately, the magic of numbers is on the side of acceptability. Smith is awarded 89%, Jones achieves 90%. Jones is awarded a First and Smith and H2A, but the mark was probably determined *after* the final comparative assessment of the work. The numerical figure gives magic certainty to the decision.

Attaching a magic number to a subjective judgement gives it legitimacy, especially if it can be demonstrated that on another occasion the same examiner would give it the same mark and so would his colleagues. The judgement is reliable.

The assessment of teaching high lights the point I am trying to make. The assessing of academic teaching differs from assessing what students have learned. What is to be assessed is not essays, or tutorial papers, reports of experiments or questions, answered in an examination. The performance of a complex task has to be assessed and the difficulty lies largely in deciding the weight to be attached to the various components.

A good teacher sets his students an example by his own scholarship. He is skilled in imparting what he knows and in provoking his students to think about it. He assesses with impartial judgement and is competent in selecting, planning and arranging work.

Judgements about the quality of performance of these tasks will depend on group consensus about what constitutes knowledge. University selection procedures tend to produce this consensus. The likelihood of a candidate fitting in with the ethos of the department will be in the minds of the selection committee even if it is not an admitted requirement. So that a view shared by academic staff about what constitutees knowledge in the discipline will be maintained; though there are always the innovative thinkers who challenge both colleagues and students.

Do you agree with me that what I spoke of earlier as a wave of scepticism is disturbing confidence in that 'knowledge' which it is the function of universities to conserve and disseminate? If this is so, then there may be a connection between scepticism about the truth of what is to be learned and the fashionable emphasis on skills. Courses abound in how to learn, how to write essays and scientific reports, how to read quickly and efficiently as if the context of any discipline is able to be mastered by the same techniques.

I have tried to draw your attention to a basic element in university teaching and learning; the true value of knowledge which is to be taught and learned. Issues in this area may underlie some of the problems raised by the previous lead papers.

There are practical problems which arise from these considerations. Should students participate in selection of what is to be learned? What procedures for appointment and promotion of academic staff are appropriate? Should there be skills courses for students?

There are also theoretical issues of the gravest importance and you may well wish to challenge the philosophical and sociological position assumed in this paper.

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1. This example is paraphrased from R. W. Cornell, Ruling Class - Ruling Culture, Cambridge University Press, 1977.

Part II:

Context and Culture

1. Mapping disciplinary culture-climates
   C. de Winter-Hebron

2. Educational knowledge codes in higher education: an empirical investigation
   A. Hope

3. The climates of teaching and learning that Australian university teachers establish in their undergraduate classes
   J. Genn

4. Professionalism in the undergraduate curriculum
   J. Newton

5. Relevance in courses for professionals
   A. Prosser

6. Differences in the organization of teaching and learning at English and German universities
   C. Gellert

INTRODUCTION TO PART II

Issues related to the context and climate of the learning situation were the major concern of a number of special interest sessions conducted at the conference. The resultant papers contained in this section include reports of studies of disciplinary cultures, learning climates, knowledge codes, and comparative organizational patterns, together with papers focusing on questions of relevance and attitude formation in professionally oriented courses.

Chris de Winter-Hebron reports the results of a study in which a sample of staff representing seven disciplines from twelve British tertiary institutions were asked to rate the importance of a comprehensive set of behavioural objectives. Students from the same institutions were asked to describe the teacher behaviours which they found memorable. The results of the study demonstrated that the selection of objectives was strongly discipline bound, and that students perceptions showed similar discipline binding. Thus different characteristic patterns for each major group of disciplines could be identified, from which a profile of a particular discipline's academic culture could be built up and points of strain for entering students located.

Alan Hope explores the links between culture in the broad sense and the educational process. His paper describes a study in which Bernstein's concepts of 'educational knowledge codes'. 'classification', and 'frame' were given an operational meaning for the Victoria Institute of Colleges system in order to validate their power to explain the role of these institutions as agents of social reproduction and control. The concept of classification - the degree of boundary maintenance between curriculum contents - was clearly supported by a number of factors examined in the study. The concept of frame - the nature of the relationship between teacher and learner in which knowledge is transmitted and received - was also clearly supported. On the basis of their classification and frame characteristics, it was found possible to differentiate teaching departments within an educational knowledge code typology, however, the differentiation was less clear at the institutional level.

A concern for the nature of the teaching and learning environment is also evident in Jack Genn's paper, which reports the findings of a study in which a sample of Australian university teachers were asked to describe the nature of the learning climate they seek to establish in their undergraduate classes. Five dimensions were used to measure the press or climate of learning environments: scholarship, practicality, community, awareness and propriety. Findings of the study indicated that there were differences in the climates of learning and teaching created by teachers between departments and universities, and between teachers of varying status, sex, age and prior school teaching experience. The nature and extent of the differences were made explicit in the study. For example, in terms of how much departments emphasize a concern for fostering awareness, friendliness and scholarship, and de-emphasize stress on rules and authoritarian regimentation, English, History and French were ranked highest and Mathematics, Chemistry and Civil Engineering were ranked lowest. Other interesting findings: women rank more highly than men in emphasizing friendliness, efficiency and organization and de-emphasizing attention to rules and regulations; emphasis on authoritarianism and de-emphasis on friendliness increases with age; emphasis on efficiency, organization and fostering achievement increases with years of school-teaching experience; universities differ in respect to teaching and learning climates only in terms of the practicality dimension.

Whilst patterns of differentiation in the cultures, knowledge codes and climates of disciplines, teaching departments and institutions are highlighted in the first three papers, the next two papers focus attention on concerns which are specific to courses of study which aim to produce professional workers in the community. John Newton argues that whilst teachers in professional courses have concentrated on the development of knowledge and skills, they have neglected the development of attitudes This neglect he claims, is likely to result in an unquestioning acceptance by students of implicit value systems, because of the lack of explicit consideration of alternatives. (In Alan Hope's terms, this is an example of very strong classification and framing.) John Newton regards the failure to seriously consider the teaching of attitudes as indefensible. He goes on to suggest approaches which may overcome barriers and resistance to teaching attitudes and permit identification of the desired types of attitudes and behaviours which indicate the acquisition of those attitudes. Alan Prosser focuses on the issue of relevance in professional courses. He asks: how can relevance be determined? Various sources of information are identified and the need for course planners to ask specific questions of these groups is stressed.

The last paper, by Claudius Gellert, examines differences in the organization of teaching and learning at English and German universities. The focus of the paper is to analyse the factors which explain why students at West German universities study approximately twice as long as their fellow students in England for a first degree. Claudius Gellert identifies differences in the aims and purposes of universities in the two countries: English universities are concerned with the transmission of a common culture, whereas there has been no equivalent tradition in West Germany; English curricula are more clearly codified and circumscribed, whereas in Germany, curricula are less structured and often vague. In England, secondary schools curricula is heavily shaped by universities so that prospective students are well prepared. This permits English universities to teach specialized courses in a shorter period than is possible in West Germany where there is only a loose connection between schools which are broad-based and non-specialized, and universities. Differences in the modes of instruction also help our understanding of the differences in the length of courses. In West Germany, the distinctions between undergraduate and post-graduate studies are virtually nonexistent. In England, the emphasis on small group teaching is very marked, whereas in West Germany, lectures are the predominant form of teaching. Counselling and advise to students is a major concern in England, while students in West Germany are largely left to themselves which according to Claudius Gellert may be the most important reason for the excessively long time it takes to obtain a first degree.

MAPPING DISCIPLINARY CULTURE - CLIMATES

CHRIS DE-WINTER HEBRON,
FACULTY OF HUMANITIES,
NEWCASTLE POLYTECHNIC

PRESENTATION

As part of the work involved in designing a new British student rating form, a sample of staff from 12 institutions was asked to rate a comprehensive set of teaching objectives according to their importance to them. Students from the same institutions were asked to describe what teacher behaviours they found memorable. The results were found to form different and characteristic patterns for each major group of disciplines, from which a profile of that discipline's academic culture could be built up, and points of strain for entering students located.

Let us, briefly, examine how these results were obtained, and what they said.

Lecturers' Objectives

A list of 46 behavioural sentences, derived from all three domains of Bloom and Krathwohl's taxonomy, was rated for importance by a sample of 81 staff from 12 institutions, working in 7 'discipline areas' -- Humanities, Education, Art & Design, Social Studies, Business Studies, Engineering, and Science. The results for each item were then analysed for skewness both for the whole group and for each discipline area, and the results for the whole group for each item were cross-tabulated by discipline area.

On the skewness analysis, three types of result were observed: a) a normal curve (skewness below ±0.6), b) a skewed curve, and c) a curve normal about its mean, but possessing high kurtosis and with the mean substantially removed from the mid-point of the scale. Types b) and c) could be skewed or shifted up or down the scale. In interpretation, type b) was read as indicating a situation where all ranges of opinion about the importance of that objective were present, but there was a 'majority' view that the objective was important (or unimportant) and type c) as indicating a situation where there was a substantial 'consensus' view about the objective's importance. Type a) was taken as indicating a neutral majority.

The results demonstrated that selection of objectives was very strongly discipline bound. Of the 24 objectives most frequently chosen as 'very important', the most chosen by any one discipline area was 13 (by Art & Design), and only ONE -- 'develop the ability to work on his own' -- was chosen by EVERY discipline area, with two more -- 'be able to interpret position, and can then be read as a self-explanatory chart. Inspection of them can tell us a great deal about the characteristics of each discipline; for instance, it can pinpoint those elements that may cause most difficulty (cognitive or affective dissonance) to a student entering it from another disciplinary background. In the context of recurrent education, this information can be very important to course design.

What do these profiles suggest to us? In Humanities, we may notice the way in which the cognitive objectives selected tend more towards the conventional 'scholarly virtues' than in, say Engineering or Business Studies: the importance of affective objectives, and the selection of those in particular that make for inner direction and subject commitment; the unimportance of 'real life' psychomotor skills (objectives 33,38, 40-44 in Table 2) and the comparatively low status accorded to the two instrumental objectives: the culture being communicated by this selection of objectives is indeed firmly that of 'knowledge for its own sake'. Education is somewhat similar, but much more 'enthusiastic', and, it seems, its members are quite unable to select any possible teaching objective as actually unimportant; in the cognitive domain, the selection of objectives is interpretive but not scholarly (low values on objectives 11 and 14); in the affective domain, it is inner directed, but not subject-centred or rigorous (low values on objectives 18, 20 and 25): Humanities students, going on to an 'education year' might well, one suspects, find the varied claims for some level of importance (a third as many again as in their own discipline) potentially incompatible, and the disciplinary culture enthusiastically non-rigorous - and indeed one knows from discussions with students and staff that some attitude very like this often is actually the case. Art & Design is even more 'enthusiastic', but there is a different pattern to its enthusiasm and one that is much less internally incompatible; its preferred cognitive skills are mainly evaluative (objectives 12, 13, 14), quite different from the other disciplines; its affective and psychomotor skills strongly stress a craftsmanlike emotional engagement with, and hard work in, the chosen field: overall, it certainly is very different in pattern from the other disciplines, and one can readily understand from this how the Art Faculties in some institutions can tend to become culturally separate entities, incomprehensible to those outside. Art & Design and Education also both show up as disciplines placing a great value on objectives that further student co-operation (objectives 22, 23).

Another group of disciplines - Social studies, Business Studies, Science - by contrast tend to be more directed to 'loners' (though in the case of Business Studies this is perhaps a little suprising). In other respects however they - and Engineering, which resembles Science in a number of ways, though not in that - can be very different. My final example considers what we may infer from these profiles about the problems of someone trained in Engineering returning to study, let us say, Management - a problem faced in a number of graduate Business Schools. First, we have to point out that the profile for Business Studies (which includes Management) is much less 'black and white' than that for Engineering; there are more degrees of importance/unimportance involved, and more items in them: that itself might cause problems of adjustment and preparedness. Second, we notice the way the Business Studies profile upgrades affective skills, and downgrades some psychomotor skills - expected enough, to us, but to an incoming student from Engineering, quite possibly evidence that these Management types are both 'fancy' and 'snobby', (confirming all his prejudices!). Finally, we notice specific changes in the rating of various objectives, all of which are liable to give him trouble - changes towards things he hasn't previously data' and 'develop a repertoire of professional skills' -- being chosen by all discipline areas except one.

Students' Perceptions

Work on the second phase, analysis of students perceptions of lecturer behaviour, has shown similar discipline binding. A content analysis of the raw student responses showed in all some 73 items about which there was indication of more than merely individual response, but only between 16 and 35 of these items were marked down in this way in any given discipline area, and once again only one, about the lecturer's organisation of the student's workload, was so noted in every discipline area, with four more, about lecture preparation, and staff availability and friendliness, being so noted in every discipline area but one. (In both the last two cases, the missing area -- with merely a single individual mentioning them -- was pure science.)

This presentation, and the workshop that follows, are concerned primarily with the lecturers' contributions - the differing levels of importance lecturers in different disciplines were found to have assigned to their various teaching objectives. The complete list of objectives, and the disciplinary profiles of the ways they are rated, will be found at Table 1 and 2 respectively.

Interpretation

What do these different patterns of choice by the different disciplines mean? To try to understand this, we need to look first at the pattern of distribution across the different domains of the 24 most important objectives. That pattern forms a characteristic discipline signature - strongly affective for Art & Design, more weakly affective for Education; strongly cognitive for Business Studies and for Science; balanced between the two for Humanities, Social Studies and Engineering, though with a different selection to form that balance in each case. Also, that signature varies in what I may describe as 'enthusiasm' over assigning importance to objectives, both in the number chosen as important, and in the extent to which that choice involves departures from the norm. Looked at in this way, we have three distinct kinds of discipline here:- Engineering and Science at the one extreme are concise in their number of choices, and don't readily depart from the mean in their ratings; Education and Art & Design, at the other, enthusiastically choose a much larger group of objectives as all being of importance and equally enthusiastically rate up the scale on many of them; while the other three disciplines fall in between the two, around the overall norm for enthusiasm. This difference, again, I suspect is quite characteristic of the way staff in those disciplines tend to approach their teaching - or even perhaps life in general. We get different results because we are dealing in effect with different cultures.

This notion is still more borne out if we look, not just at the 24 most important objectives, but at all of them. By plotting their modified skewness values (this time with sign) against domain, a matrix can be obtained which in effect gives us a cultural profile for each discipline. In the tables given here, limitations of space mean that I can only show the number of each objective concerned, and I must ask the reader to use the list of objectives as a key; working versions of these profiles are however normally constructed with the behavioural sentences actually in learnt to value - analysis, evaluation and resynthesis of material (objectives 8, 10, 13), being creative, taking responsibility and reacting to the unexpected (objectives 28, 31, 42). It may well be that all good real-life engineers do this anyway, but that's not the cultural picture communicated by his teachers in selecting their objectives: and this sort of cultural strain may do much to account for the difficulties in returning to study observable in this kind of student.

Differences in students' perceptions of their 'ideal lecturers', describable from the other, student-originated, perceptual profile, will then help us fill in this picture, and will usually tend to agree with it rather strongly. An engineer moving on to study management, for instance, is likely to find himself in a group of students who don't share the depth of his concerns, which are for a lecturer who cues carefully for the exams, organises the workload well and marks fairly, and gives clear lectures which use plenty of visual aids (seminars and tutorials don't much matter), who is friendly, helpful, and readily available, and avoids the danger of treating his students like overgrown schoolchildren, and who is interested in his students' opinions (though it apparently doesn't matter whether or not he socialises with them outside class.) Instead, his new fellow students will have concerns which may well be strange to him, about the interest and enthusiasm of the lecturer, and about appearance and body language. Most alienating of all for our engineer, they may actively replace his concern for examination cues with concern against a course too narrowly focussed on examination material - a change of attitude he may find it quite difficult to accept.

Finally,the thing to be noted about all these profiles is the kind of sense they all make. We can see why they are as they are. The differences between selection of objectives, by different disciplines is not arbitrary: it is rooted in the disciplinary culture.

WORKSHOP

Following demonstrations of the patterns discussed in the previous section, the participants worked with the rating forms used in the research to construct their own lists of preferences. After a break, they worked in small groups on building objectives profiles for their own disciplines/ interests. The workshop ended with a reporting and discussion session, a summary of which follows.

The Profiles

The group commented that the 'strains' or distance-points raised could equally well apply to/affect students on courses which involved studying several different disciplines across the same time-period; here, their effects might be even more marked (cf. Malcolm Parlett's work on illuminative evaluation of an American women's college,'Evaluation in its Context', Bulletin of Ednl. Res., Summer 1976). By contrast, however, the existence of distances between different disciplines' ratings of specific objectives did not necessarily predict strain for the student, and if it did, this strain might be creatively useful - for instance, it might spur the student to the personal growth involved in learning to acquire multiple special literacies. The real problems were, the danger of the student being allowed to remain in a state of continuing confusion, and the problem, when discipline changes were sequential, of internalising the prior discipline's cultural values.

It was also felt that these problems of conflicting objectives or disciplinary cultures were problems for the teacher, if he or she similarly moved discipline (e.g. from an academic teaching post into an education department) or was asked to service into a course operated by another disciplinary department.

Working with the Forms

The group felt that the answers they gave depended very much on the purpose of the exercises: different levels of specificity over teaching scope, or different student groups, could elicit quite different values being placed on certain objectives. They also felt that working the forms posed the 'whole/part' problem, common in developing checklists of teaching objectives,in a peculiarly intense manner: "when I've said this, is this all I want to say". The acceptability of these forms for use by groups of staff might also depend strongly on wording: an English department, for instance, might not accept an item involving the word'evaluate', but might be quite happy with the same item if the phrase 'critically examine' were substituted.

In the exercise, the group were asked to use the forms first to raise their own consciousness of what their objectives were, and then to negotiate agreed group objectives, as if they were deciding the objectives to be specified for a particular course, or tested by a given exams. It was interesting to notice that each group - Physical Science, Social Science, Education - devised a different, and characteristic, method for doing this. It was also suggested that the form might have other uses which could be explored. Examples were:-

- exploring discrepancies between staff and student beliefs about a given cause

- exploring the cultural climates of graduates'employers

Table 1: The Full List of 46 Objectives

By the end of my teaching with him (her) the student should be able to ....

1. Recall specific facts (terminology, classification, methods, trends etc).
2. Recall fundamental principles, generalisations or theories (laws, rules, systems, concepts etc).
3. Translate data and material from one form into another (express in alternative form) (includes being able to make effective notes of material).
4. Interpret, explain or summarise material.
5. Extrapolate material (extend meaning, predict consequences, trend, effects etc).
6. Apply course material to solve problems in the subject area.
7. Analyse data and material (identify elements or relationships).
8. Analyse material (identify organisational principles and structures).
9. Be aware of the methods by which professionals in this subject area go about acquiring new knowledge.
10. Synthesise material to produce a structured essay, report of seminar paper.
11. Plan an operational procedure, experimental design, research proposal etc.
12. Produce a new set of abstract relationships from material (generalise).
13. Judge and evaluate subject material against given criteria.
14. Generate criteria for judging material in the subject area.
15. Be aware of aesthetic factors in the subject material.
16. Attend closely to explanations in the subject area.
17. Show sensitivity to human needs and social problems.
18. Discuss, or respond to questions on, course material.
19. Comply with rules, conventions etc.
20. Work hard at the material in the subject area.
21. Volunteer for tasks, optional work etc.
22. Cooperate with others (relate to them, interact with them).
23. Contribute to group activities (e.g. promote discussion of course material).
24. Evaluate rules, conventions etc.
25. Accept responsibility for actions (his own and others').
26. Enjoy the work, and respond to it (show interest in it).
27. Appreciate or value values implicit or explicit in the subject area (examples might be - appreciate artistic merit, believe in the democratic process, be aware of and value scientific method, show concern for others' problems etc).
28. Organise a value structure for himself (or for the subject).
29. Be aware of his (her) own limitations and deficiencies.
30. Develop ability to work unsupervised.
31. Develop creative capacities.
32. Demonstrate consistent ethical principles and social ideals.
33. Perceive and interpret physical stimuli relevant to the subject area (e.g. in chemistry, taste or smell of certain substances etc).
34. Recognise apparatus, tools, chemicals etc. as appropriate.
35. Assemble and set up apparatus, read instruments etc.
36. Want to be accurate, careful, skillful in practical work.
37. Follow instructions under supervision (repeat procedure demonstrated).
38. Make use of trial and error.
39. Express himself (herself) clearly and in a controlled way in speech, writing and music.
40. Exhibit manual skills (use tools, instruments, machines etc. properly).
41. Reproduce predetermined standards of physical performance.
42. React correctly to faults, errors, unexpected events.
43. Co-ordinate motor skills or motor and cognitive skills (example - drive a car well, perform fine operations with dexterity).
44. Deal with totally unexpected events, emergencies, potential dangers.
45. Develop the repertoire of skills and attitudes recognised as appropriate for professionals in the real-life field work most closely related to the subject area of study.
46. Discover the implications of course material for self understanding.

TABLE 2: DISCIPLINARY PROFILES, IN SUMMARY

Discipline & Domain	Very Important	Rather Important	Neutral	Rather Unimportant	Completely Unimportant
A)HUMANITIES: Cog.	2,4,5,9	6,10,14	1,3,7,8, 11,12,13		
Aff.	17,23,25 26,30	18,20,22 27,28	15,16,19,21, 24,29,31	32	
Psych.	39		36		33,34,35,37,38, 40,41,42,43,44.
'Instrumental'		45	46		
B)EDUCATION: Cog.	4,5	2,3,6,7, 10,12,13	1,8,9,11,14 15,16,18,19		
Aff.	17.23,27 28,30	22,24,26 29,31	20,21,25,32 33,34,35,37,38		
Psych.	36,39,44		40,41,42,43		
'Inst.'	45,46				
C)ART & DES: Cog.	5,12,13,14 15,18,20, 25,26	2,6,7, 8,9,11	1,3,4,10		
Aff.	27,28,29, 30,31	17,22,23, 24	16,19,21,32		
Psych.	35,38,39 40,42,44	36,43	33,34,37	41	
'Inst.'	45,46				
D)SOC.STDS. Cog.	4,5,6,10	7,8,13	1,2,3,9, 11,12,14		
Aff.	17,25,26 27,30	18,20	15,16,19,21,22, 23,24,28,29,31,32		
Psych.		39	36,37,38,42,44	35	33,34,40,41,43
'Inst.'	45	46			
E)BUS.STDS. Cog.	1,2,4,5,	8,10,13	3,6,7,9 11,12,14		
Aff.	29,30,31	18,20,25, 26	16,17,19,22 23,24,27,28	21,32	15
Psych.	39	36,42	37,38,41,44		33,34,35,40,43
'Inst.'	45,46				
F)ENG'G. Cog.	2,4,6		1,3,5,7,8,9 10,11,12,13,14		
Aff.	26,29,30	20,23,27	16,17,19,22 24,25,31,32		15,18,21,28
Psych.	35,39	34	33,36,37,38 40,42,43,44		41
'Inst.'	45	46			
G)SCIENCE Cog.	2,4,6,7	5,8	1,3,10,11 12,13,14	9	
Aff.	24,26,30	16,18	15,19,20,22,25 27,28,29,31	17	21,23,32
Psych.	36	35,38,39	34,37,40 42,43,44	33,41	
'Inst.'	45		46		

EDUCATIONAL KNOWLEDGE CODES IN HIGHER EDUCATION: AN EMPIRICAL INVESTIGATION

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1. *INTRODUCTION*

There has been a movement in recent years for theorists[1] from various areas to attempt to explain education in its wider social context and, in particular, to relate curriculum change to social change. The work of Bernstein[2] is part of this movement which recognises the curriculum as socially organized knowledge that reflects both the principles of social control and the distribution of power, and which, at a more general level, relates the curriculum to the transmission and reproduction of cultural attributes. While curriculum analysis has been to the forefront of this movement, it has also provided a wider focus upon the knowledge properties of schools and upon the social basis of what is defined as valid educational knowledge. This approach has therefore incorporated an analysis of the ideological assumptions underlying the existing curricula, pedagogy and systems of evaluation, and their interrelationship with educational knowledge and social change.

Bernstein's theory is worth examining, especially for its attempts to link curriculum and pedagogical considerations to social and cultural change. Though it is not a total theory of change, Bernstein's model has potential for exploring educational change, for it appears to embody a social relational factor which may provide a basis for linking with other theories of change, such as Durkheim's[3] propositions. Additionally, the categorization of curriculum types according to various social and educational criteria provides prospects for empirical comparisons, either between local educational institutions, between educational systems nationally, or even between international systems.

This paper focuses upon the empirical validity of the concepts of 'classification', 'frame' and 'educational knowledge codes' as proposed by Bernstein in the paper "On the classification and framing of educational knowledge"[4]. The empirical investigation was set within the framework of the Australian tertiary education system which since the mid 1960's had experienced considerable growth and development, particularly in the advanced college sector. While much of the impetus for this development was perceived to be political responses to both social and economic pressures, which called for the fuller development of the individual and for a more highly skilled labour force, an equally important factor was a general community concern for the quality of the educational product. This concern was focused specifically on the need for deep and far reaching improvements in curricula, teaching, assessment and student selection, in order to meet the wider community ideals. In effect, this broadly based desire to improve qualitative dimensions as well as to widen educational availability, can be postulated as being a general social movement which saw in education the opportunity to achieve social objectives and social change.

Accordingly, while the general concern of this paper is with educational change, its specific emphasis is on the investigation and validation of a theory of educational knowledge and cultural transmission, expressed in actual curriculum and teaching practice.

It was the potential for understanding educational change, together with the absence of any empirical study employing Bernstein's theory, which underlay the decision to carry out the investigation. The challenge to implement such a study in the Australian context was prompted by the availability in the Victoria Institute of Colleges (V.I.C.) system of a dynamic and virtually natural model of change which presented an ideal opportunity to test empirically the concepts of stability and change present in the Bernstein model. Although the theoretical model may have wider relevance than this particular institutional setting, it was the expansionary process in the V.I.C. system[5] during the 1960's and 1970's, supported by its favourable historical beginnings, which provided scope for the injection of new staff and resources and which opened up possibilities of new ideas and innovation. In essence, ideas of innovation occurring, or being necessary, were explicit in the wider public context of this system's expansionary process, thereby raising questions relating to the sources and modes of any such innovation and the response by institutions, academic departments and faculties to these developments.

However, while much of the value of Bernstein's concepts lies in their relevance to educational change, his theory has limitations, such as the presence of many untested propositions and unanswered questions, which limit the focus and depth of an empirical analysis. These difficulties are exacerbated by methodological gaps in the analysis whereby Bernstein has seen fit to place greater attention on opening up problems rather than attending to approaches. There is also the suggestion in the overall conceptual development that the propositions may really be seen as surfacing at the national or international levels. In such cases the educational system, individual institution or academic department may not be a valid locus for the classification and framing concepts. Another concern relates to the influence of particular ideologies upon the realization of the alternative transmission structures embodied in the model; a failure by Bernstein to deal with specific features of classification and framing inherent in alternative forms of socialization makes it extremely difficult, if at all possible, to analyse a specific ideological base at the empirical level.

Notwithstanding these limitations, the concepts of classification, frame and educational knowledge codes offer an underlying framework for an empirical exploration of educational institutions in their role as agents of social reproduction and social control. However, irrespective of the way in which the particular concepts of classification and frame may be seen by others as relating to social reproduction and social control, a major aspect of the present paper is to ascertain the validity of Bernstein's concepts in a certain setting and to relate this to change. It would be the work of a much larger paper to take up the broader issues of social reproduction and society's classifications and frames. The analysis in this paper is therefore directed predominantly towards the level of the institution as this provides a practical basis for empirical investigation. This level is also relevant to attempts to understand educational institutions according to a code categorization, including research into the institutional outcomes of the realization of these codes. Accordingly, the investigation was shaped to provide answers to three major considerations:

(i) Given Bernstein's theoretical constructs, can the educational knowledge code concepts be confirmed at an empirical level?

(ii) Does the concept of an educational knowledge code tend to work itself out at a micro-level (institution/department/faculty) or at a macro-level (regional/national education system)?

(iii) Is the concept of a knowledge code distinguishable at a general level of validity as opposed to a particular era and location - that is, can the knowledge code be supported irrespective of the particular time and circumstances pertaining to the educational system being investigated?

Specific questions to be investigated were extensions of these three major considerations and included the following: Do the operating characteristics of courses and institutions support the code types as hypothesised or are alternate code structures suggested? Are the various institutions and faculties similar in terms of code charactercics and code categorization? What is the extent of the differences (if any) between code types which may produce distinctions within, and between, the institutions being investigated? And at a more general level, does the collection and integrated code typology subsist as a common code continuum or are the codes capable of a separate realization?

The structure of this paper is as follows. Section 2 provides an outline of the major concepts to be explored in the investigation together with a brief discussion of some characteristics of educational knowledge codes and of the outcomes expected for the alternate codes. Section 3 introduces the four investigatory studies and methodology. The final section (Section 4) draws together the empirical conclusions and opens up exploratory aspects of the investigation.

2. *EDUCATIONAL KNOWLEDGE CODES, CLASSIFICATION AND FRAME: AN OUTLINE*

It is through the concept of an educational knowledge code that Bernstein has related power and control within society to the activities occurring within the particular educational institutions. Underlying the proposed knowledge codes is the assumption that the knowledge realized through the educational process is shaped and structured by the various message systems providing inputs to this process. The message systems comprise the curriculum, which defines what counts as valid knowledge, pedagogy, which defines what counts as a valid transmission of this knowledge, and evaluation, which defines what counts as a valid realization of this knowledge on the part of the taught[6].

The form and content of these message systems can assume various emphases but overall they are seen to reflect the underlying ideological principles and purposes held by groups in society regarding the functions of education. The principles which shape and structure these message systems towards a realization of educational knowledge can therefore be designated an 'educational knowledge code'. Two educational knowledge codes can be postulated at the most general level: a 'collection'code and an 'integrated' code, each representative of alternate underlying principles structuring the message systems. These two generic codes are distinguished by the strength of their classification and frames which are exhibited in the three message systems comprising curriculum, pedagogy and evaluation.

Classification refers to " the *relationships* between contents ... to the nature of the differentiation between contents". In this sense it is not seen as a classification or categorization of curriculum contents, but as "*the degree of boundary maintenance between contents*"[7]. Strong classification embodies curriculum contents which are well insulated from each other by clear cut and strong boundaries; contents stand in closed relation to each other. Weak classification features considerably reduced insulation between curriculum contents; boundaries between contents are weak or somewhat blurred, while contents stand in open relation to each other.

Frame focuses upon the specific pedagogical relationship between teacher and student and refers to "the form of the context in which knowledge is transmitted and received"[8]. The extent of frame strength will depend upon the nature and power of any boundary existing between what may and what may not be transmitted in the teaching-learning relationships. Framing can therefore apply to the selection, organization, pacing and timing of the knowledge transmitted and received. Strong framing exhibits a sharp boundary between what may and may not be transmitted and imposes a restriction upon the range of pedagogical options available to the teacher and taught. Weak framing is evidenced by a blurring of boundaries and embodies a considerably enhanced range of pedagogical options, at the discretion of the teacher or pupil, over the selection, organization, pacing and timing of the knowledge to be transmitted.

Basically, it is variations in classification which distinguish the major knowledge codes. The collection code is characterized by strong classification; curriculum contents assume a closed relationship to each other, that is, a strong boundary exists between contents. By collecting specified groups of these contents in order to satisfy some criteria of evaluation, usually related to some ideological purpose, knowledge criteria can be satisfied and educational objectives achieved. Sub-types of the collection code will vary according to the relative strength of their classification and frames, and may fall into specialized and non-specialized types differing according to the purity of knowledge being examined and/or the linkage with specific subject units or courses of study. Figure 1 provides an outline of collection codes.

Integrated codes involve considerably weakened classification relative to collection codes; this reduction in boundaries between curriculum contents tends to be implicit and "refers minimally to the *subordination* of previously insulated subjects or courses to some *relational* idea, which blurs the boundaries between the subjects"[9]. This subordination operates to focus attention upon the deep structure of each subject, rather than its surface structure. The relational idea is seen to require a general consensus from those involved if the integration is to work effectively; additionally, the central idea must be stated quite explicitly with the nature of the linkage between the separate contents and the integrating idea being well defined and elaborated. Sub-types of the integrated code are proposed which range from a 'teacher based' type where the individual teacher blurs the boundaries between contents being taught, to a 'teachers based' type where a number of teachers subordinate their specific subject units to the specified relational idea. Variations in the strength of integration can occur according to the number of teachers involved or whether they form a group from within a common subject area or from different subject areas. The more complex integration would involve a large number of teachers from a variety of subject disciplines. Figure 2 provides an outline of integrated codes.

The characteristics and the outcomes proposed for the alternate codes are seen to be largely dependent upon the message systems of curriculum, pedagogy and evaluation. Accordingly each code type is recognised as possessing underlying characteristics and ideological constructs which serve to shape the behavioural responses and educational outcomes in the operational realization of the code. For example, both pedagogy and evaluation can be expected to differ markedly under the alternate codes; in the case of the collection code the closed curriculum and hierarchial educational structure will operate to restrict the transmission of advanced knowledge to a few select students. The effect of this knowledge hierarchy upon pedagogy and evaluation is likely to be quite precise; teaching will be instructive and directed to imparting assigned principles, derivations or what can be termed states of knowledge. The hierarchical and well defined knowledge requirements of collection will also enable an evaluation process which can incorporate a rather exact, ordered and objective base.

Alternatively, the structure of knowledge under integrated codes is perceived to progress from the deep structure to the surface structure, with education becoming an exploration of the general concepts through which these principles are derived. The educational emphasis will therefore be placed upon ways of knowing rather than the acquisition of specified states of knowledge. Appropriately, pedagogy will favour group and self-regulated learning structures over teacher-centred approaches. In supporting a knowledge structure which does not depend upon a defined knowledge hierarchy, the integrated code will enable student membership categories to be less selective and teaching groups to possess greater flexibility. This changed concept of what is knowledge, including changes in the structures established for transmitting this knowledge, will provide for significantly different modes of evaluation. Thus increased subjectivity is likely on the part of the assessor when faced with a lack of explicit evaluation criteria.

From these and related propositions it is possible to think of departments and institutions which espouse one or other of these knowledge codes. It is thus feasible to conceive of some crude measure relating to the extent to which a designated educational unit (department, faculty, institution) conforms to this code prescription; that is, there would appear to some scale or variable which describes this relationship. For the purposes of this investigation it was necessary to isolate the various code hypotheses, for embodied in the analysis was the requirement to test and verify such hypotheses against the educational practice of the institutions. This called for hypotheses relating to the definitional statements, assumptions, characteristics and outcomes proposed for the alternate codes. However, in order to utilize Bernstein's propositions for the purpose of validating the code typology and for providing answers to the range of questions posed, an extensive translation and restructuring of the theoretical concepts was undertaken. This allowed for the development of questions which were both appropriate to potential respondents in the V.I.C. institutions and also able to elicit a directional quality in responses compatible with more sophisticated statistical analyses. Questions were compiled focussing upon five general areas, viz:

- the concept of classification;
- the concept of frame;
- sub-types of educational knowledge codes;
- characteristics and outcomes of educational knowledge codes;
- institutional and personal data.

3. *THE EMPIRICAL INVESTIGATION*

The investigation comprised four complimentary studies conducted over the period 1974 - 1978.[10] The first study involved Heads of Departments and Schools within the designated V.I.C. Institutes. The data for this study was derived from 101 responses to a questionnaire which was factor analysed using S.P.S.S. program FACTOR .[11] The second study utilised data derived from 184 academic staff respondents to a second questionnaire which was similarly factor analysed. The third study utilised Discriminant Analysis on the factors extracted in the previous studies in order to discriminate between respondents' code characteristics according to faculty and institutional membership viz:

A. Academic Staff by Faculty

B. Heads of Departments by Faculty.

C. Academic Staff by Institution

D. Heads of Departments by Institution.

The fourth study involved case studies of selected departments, conducted with a view to ascertaining the extent to which code characteristics able to be attributed to a department persisted over time.

4. *SUMMARY AND CONCLUSIONS*

The purpose of this paper has been to report an investigation focussing upon the empirical validity of the concepts of classification, frame and educational knowledge codes. These propositions were considered in relation to the educational process with particular emphasis being placed upon curriculum, pedagogy and evaluation.

However before drawing together the empirical conclusions arising out of the various studies undertaken, it should be borne in mind that any verification of the validity of these kinds of concepts does not necessarily establish the validity of any wider theory of knowledge in which Bernstein or others may have placed this theory. In this regard the investigation was not specifically intended to validate or extend aspects of the sociology of knowledge or educational epistemology or more broadly based issues of social change, but rather to validate empirically Bernstein's theoretical model with some relationship to these aspects. Accordingly, theories of education as cultural reproduction or the interrelationshipof social and educational change, mentioned in the introduction to this paper, while being relevant to this investigation were not directly developed.

Associated with this aspect was the more widespread concern that, despite the fact that Bernstein's wider ideas relating to educational knowledge codes and educational processes have been used and criticised extensively in education and sociology, this appeared to have been done without attempts to investigate the concepts and to undertake relevant research at a deeper analytical level. If there was no validity in the theory at all then it would make no sense for people to adopt the theory or take it forward.

While this paper has attempted to investigate these concepts, the investigation was confined to the Victoria Institute of Colleges and its associated colleges and institutes; while this system was shown previously to be eminently suitable for an empirical exploration of educational processes in relation to the Bernstein Model, it does have idiosyncratic features which may operate to limit any empirical conclusions to this system rather than being able to apply conclusions more generally to other educational systems.

Yet, while this may be a limitation with regard to the empirical validation of the coe concepts and their broad applicability to other areas and systems, the investigation did extend beyond the technical aspects of code validity and associated propositions by opening up some of the possible areas of significance which are contingent upon some form of empirical validity being established. Thus, evidence of the persistence of educational knowledge code concepts over time may transcend the particular individuals, departments and institutions involved.

What then are the major conclusions arising from the empirical investigation? Focusing upon the factor analytic studies, the concept of classification is clearly supported by the majority of factors. However, while classification refers broadly to the strength of boundaries between curriculum contents, it is not a simple relationship and is evidenced in this investigation through a number of elements arising in individual factors. These elements suggest that classification is evidenced in a number of forms and can arise from a variety of influences rather than surfacing in a single factor.

The concept of frame is also evidenced across individual factors with stronger frames emanating from external groups, such as academic bodies and professional associations; stronger frames are also recognized from community sources as distinct from more specific external groups.

It is interesting to note that the concept of frame appeared to be more strongly evident in the Head of Department analysis (Study 1) which may reflect their wider operating sources of control and influence over pedagogical options.

The second general set of conclusions relates to what the evidence suggests about knowledge codes and the degree of support provided for the two major code proposals. Figures 1 and 2 summarized essential characteristics proposed for the alternate code types based essentially upon Bernstein's propositions. In both cases, the relative strength of classification and frame have been utilized in defining the major code types and related sub-types.

While the empirical evidence strongly supports variations in the strength of classification and frames at the level of individual factors, a consideration of the factors at the broadest level points to no single factors which exclusively evidences the alternate code typologies. However, a number of diagnostic elements of the alternate code types are clearly exemplified.

Accordingly, with regard to knowledge codes, it is possible to locate departments which are high on a number of factors and which can be considered together.

Various characteristics and outcomes proposed for the alternate code types are also supported through diagnostic elements which appear in a number of separate factors. Organizational and interpersonal relationships evidenced in the investigation are quite consistent with thse proposals; the presence of an active organizational hierarchy and more formal work based relations are associated with evidence supporting the collection code typology (stronger classification), while a reduced emphasis upon an organizational hierarchy, and more information interpersonal relations, are evidenced in situations of weakened classification.

Support for the proposal that ideological consensus will be more necessary in situations of weakened classification must be treated more cautiously. While a positive relationship between the need for ideological consensus and weakened classification is shown in the Heads of Departments analysis this is less clear at the academic staff level.

Other characteristics and outcomes proposed for the alternate code types are also supported: for example, evidence of greater reliance on committees and meetings, and a wider knowledge by individuals of college administration and the teaching practices of others is associated with weakened classification. Similarly, in the academic staff analysis, evidence of a requirement for some personal commitment to a supra-content idea is associated with weakened classification.

The third general set of conclusions relates to the extent to which the factors identified in the studies discriminate in contemporary circumstances at the publicly recognised levels of the institutions, the departments and the faculty types. The multiple discriminant analyses went beyond the individual factors to ascertain which combination of factors provided the best discrimination of institutions and designated faculty types. These analyses established an underlying group basis for attitudes and opinions expressed in the questionnaires, such that groups displaying agreement about certain perceptions of how things operate could be effectively differentiated. Concentrating upon the academic staff analyses, there was clear evidence to differentiate the designated groups with some degree of consistency. The faculty analysis established differentiation based upon various attributes including characteristics of the collection code - integrated code dichotomy and other elements such as size of department/institution and institutional location.

While the academic staff-institutions discriminant analysis clearly pointed to differentiation between institutions, this was rather more ambiguous with regard to the code typology. One discriminant function indicated differentiation between institutions exhibiting diagnostic elements supportive of stronger classification and of a more specialized collection type (R.M.I.T., Preston I.T.), and institutions exhibiting characteristics supportive of weakened classification and of the integrated code type (Lincoln Institute, College of Nursing). The relatively unclear code differentiation displayed between institutions can be largely expected, for apart from the mono-purpose institutions, which tend to display some more consistent code characteristics, it would be difficult to obtain clear differentiation between multi-faculty and multi-department colleges. However, it should be kept in mind that these conclusions may only be applicable to the V.I.C. system and the current set of departments and may not be applicable to other systems. Overall therefore, even though the Bernstein model seems to suggest a national or an international locus for the code typologies, this research points to the locus of validity for educational knowledge codes as being more applicable to the social/organizational level of the department, rather than the institution or some broader level.

Given these conclusions which establish a basis for code differentiation at the faculty-department level, the fourth general set of conclusions relates to evidence of the stability or otherwise over time of the major code concepts and educational processes, and of the code categorization identified for faculties, departments and institutions. While the case studies conducted for this purpose were necessarily limited to six departments and were conducted some four years after the initial questionnaires, they verified the previously ascertained characteristics for the particular departments studied and reinforced conclusions pertaining to any trends which were apparent at the earlier time. The broad conclusions established a strong association between the categorized code type evidenced for a department and the characteristics and outcomes proposed for these code types; that is, if the department was previously of a collection type it tended to remain so with these characteristics persisting over the time of the study. For example, the Department of Applied Chemistry (R.M.I.T.), previously categorized in the collection code typology, displayed minimal change in characteristics with perhaps the code category actually being more firmly entrenched at the time of the case study. A similar picture emerged for the General Studies Department (Prahran C.A.E.) which had been categorized previously in the integrated code framework; these identified characteristics were seen to have persisted over the period of time involved in the study even though the Department had been subject to strong growth and change.

A more general question posed in relation to the case studies concerned the extent of innovation recognized in the alternate code categories. While evidence of innovation is limited, it would appear that departments have innovated within the relevant code category. The presence of innovation, its extent and its nature, is therefore not independent of code types, but evidence from the case studies suggested that the integrated type seemed to be more responsive to change and innovation.

More generally, the results of these case studies pointed to validation of the previously established code categories and provided support for many of the outcomes proposed for the alternate code types. Of particular note was the clear support generated for the persistence of a code categorization over time and the extent to which the locus for code categorization and processes was reinforced at the department level.

Exploratory Aspects of the Investigation

To the extent that the various conclusions arising from this research suggest some empirical validity for the code concepts, then these conclusions represent a further level of complexity with regard to the Bernstein model as a basis for a theory of educational change in this context. For example, the concept of frame is established, with varying degrees of frame strength being suggested, a result which supports Bernstein's perception of frame in its educational context. However, frame is also recognized in relation to its source, with academic groups, professional bodies and the community being distinguished. Appropriately, particular changes relating to these groups can be expected to have educational consequences, such as may occur if a professional engineering or accounting body decided to respecify the accreditation requirements for professional membership, or an academic body decided to alter the structural basis of recognized courses of study. Similar types of pressures may arise from the community itself which can have the effect of influencing pedagogical options in various ways. This paper suggests that while the processes of frame are evidenced at work in the V.I.C. system, they would appear to be much more complex than Bernstein's proposals. For educational purposes it may be necessary to further elaborate and discriminate the sources of frame.

A similar situation arises with the concept of classification which is considered by Bernstein basically in terms of boundary strength. The research conclusions indicate that while classification is clearly established, with variations in the strength of boundaries being supported, it is a more complex process which relates additionally to the type, source and locus of classification. Thus the notion of type of classification would require close attention in reconsidering a code typology.

An area where the research indicates that certain aspects may be worthy of further exploration relates to the issue of code stability. If there is a certain degree of code stability, as has been suggested by the case studies, then there may be alternative models which could be evoked to consider this aspect. One possibility relates to the basis of this stability being embedded in the continuity of the social matrix, such that despite staff coming and going there remains a defined social group which has a meaning of its own.

Another possibility which bears some relationship to the previous point, relates to the extent to which located dispositions of staff within an academic department are consistent with regard to some other social basis, such as the formation of the academic staff themselves. Staff formation may relate to intellectual or other characteristics and may have guided the recruitment of staff; it raises the possibility of stability residing in some common background to academic staff which relates to particular disciplines or departments. For example, the case study of the Lincoln Institute highlighted explicit efforts to employ staff with an acceptable professional background in the area of health sciences and with acceptable qualifications - more often than not obtained at the Lincoln Institute. Associated with this intellectual professional formation aspect is the likelihood that the people who have been formed in these disciplines are more congruent with the particular forms of classification, pedagogy and evaluation applicable to the discipline. This might lead to a tendency to endorse the overriding code concepts and processes, particularly if the discipline has been subject to strong rates of growth generating expanded employment opportunities. In effect, the research tends to be pointing to a reproduction of intellectual cultures at the department level.

It could also be argued for whatever roots it had, that Australia (and other countries) during the late 1960's and the early 1970's was subject to something like a syndrome of the integrated code typology, and associated features assumed a degree of social significance. It may therefore be that certain individuals, or certain types of departments-disciplines, such as general studies and para-medical studies, have been and still are more susceptible to taking up these ideas than others. To some extent both disciplines profess to be in the 'helping professions' (Case Studies) a view which has much of the flavour of a contemporary ideology. But it cannot be said that the departments which fit this ideal have grown up solely because of the well meaning intentions of the staff members themselves. It is more probable that these ideals are seen as valuable in themselves, which should accordingly be expanded and encouraged.

Additionally, there may have been historical factors which supported this approach, such as a more general shortage of teachers or shifts in medical services, which created new conditions and new demands and thus generated community and government support. In large part therefore, the formation of departments with these sorts of emphases was not inconsistent with prevailing community ideologies.

While still considering the broad area of code stability, questions arise regarding the extent to which the characteristics portrayed by the factors and the discriminant functions would have remained stable or been modified, had social and demographic trends meant that fewer students wanted to enter the advanced colleges. For example, what effects on code stability would have arisen from threats to the system in the form of unemployment, or public acceptance and growth of a potentially alternative system such as that of 'Technical and Further Education'? Which social groups/faculties/institutions would be most sensitive to these threats, such that they would have to alter basic concepts in order to respond to these pressures? It may be that while a staff member's intellectual and professional formation has shaped him to a collection code, any more general trends which threaten the department or discipline may create a temporary or permanent movement in his code expectations? This may be the situation with the Department of Civil Engineering (C.I.T.) and the Department of Physics (S.C.T.) which have more recently moved to offer more comprehensive courses of study. However, if this is the case, is it a reaction which could normally be expected from engineering and physics disciplines or is it a response idiosyncratic to these departments?

Another area of exploration which arises from the research relates to the loci of educational knowledge codes. Whereas Bernstein tends to be relatively indifferent to this aspect, this research suggests that code locus is more significant and is worth developing. In practice a common code locus would not be expected for all educational levels, but certain levels may be more important than others. It is probably the case that in tertiary education the dominant locus is the department or similar; but in the case of secondary education, its historical development under a state or national system which has adopted a centralized approach to standards, curriculum development and forms of pedagogy and assessment, may rather locate the code type at the system level. This is an aspect worthy of exploration for it may be that historical, social and demographic factors have considerable influence upon the locus at which an educational knowledge code type shows up.

FOOTNOTES

1. The theoretical propositions of Bourdieu (1971,1973), Bourdieu and Passeron (1970), Davies (1973), Illich (1971), Musgrave (1973,1974) and Young (1971) supported this movement and provided a valuable backdrop to this empirical investigation.

2. Bernstein (1971a, 1974, 1975)

3. Durkheim (1964, 1973)

4. Bernstein (1971b)

5. The Victoria Institute of Colleges was established in June 1965, as a co-ordinating body to "foster the development and improvement of tertiary education in technical, agricultural, commercial and other fields of learning (including liberal arts and humanities) in institutions other than in the universities of Victoria" (V.I.C. First Annual Report, 1965).

6. Bernstein (1971b) p.203.

7. Ibid, p.205.

8. Ibid

9. Ibid, p.209.

10. Hope (1979). Details of Questionnaires, methodology and administrative procedures are provided in this Study.

11. Nie et al (1975) p.468.

12. Cooley and Lohnes (1971), Veldman (1967)

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Figure 1

Collection Codes:

Strength of Frames (F)				
	Strength of Classification (C)			
	← Very Strong Boundaries		← Strong Boundaries	
	(Closure)			
	Specialized Curriculum		Non-Specialized Curriculum	
	Pure Knowledge	Impure Knowledge	Subject-Based	Course-Based
Stronger ↑			Non-specialized, subject based, Very strong F, strong C	
Weaker ↓	Specialized, pure; Very Strong C, Weaker F	Specialized, mixed; Strong C, Weaker F		Non-specialized, course based curriculum; Weaker C, Weaker F

Code Locus

National
|
State
|
Institution
|
Department
|
Faculty
|
Classroom Group
|
Individual

Expected Outcomes for:

- Curriculum
- Pedagogy
- Evaluation
- Organization structure
- Power structure
- Lecturers
- Students

Figure 2

Integrated Codes:

	Strength of Classification (C)				
	Weak →			Weaker (openness) →	
	Lecturer Based	Lecturers Based [Few]		Lecturers Based [Many]	
		Within a Common Discipline	Across Various Disciplines	Within a Common Discipline	Across Various Disciplines
Stronger ↑ Strength of Frames (F)		Lecturing Team is Small	Few Lecturers, Few Disciplines		
Weaker ↓	Individual blurs subject boundaries; has control over pedagogy			Lecturing Team is Large	Many Lecturers, Many Disciplines

Code Locus

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Individual

Expected Outcomes for:

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THE CLIMATES OF TEACHING AND LEARNING THAT AUSTRALIAN UNIVERSITY TEACHERS ESTABLISH IN THEIR UNDERGRADUATE CLASSES

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I. CONTEXT AND AIMS OF THE STUDY

This study is part of a larger study, conducted with the assistance of a grant from the Australian Vice-Chancellors' Committee, and concerning university teaching in Australia (Genn: 1981). The larger study is centred on considerations of what university teachers think and feel and do about their teaching.

This present study concerns what the teachers do, in that it is an investigation of the climates or press of the environments for learning and teaching that the teachers create in their undergraduate classes. Creation of these press or climates may be viewed as the most general, pervasive and probably most influential thing the teachers do.

The study focuses on the nature and extent of the differences, if any, that exist in the climates of learning and teaching created in their undergraduate classes, by persons in different departments, or of different status or sex or age or school-teaching experience, or in different universities. These climate differences, for teachers categorised in the various ways just noted, have not been studied to any great extent in previous research.

One aim of the study then is to get information that is of immediate interest to university teachers and others wanting to know what undergraduate teaching and learning environments are like. Such persons may want, further, to see these environments against whatever criteria of "good" environments may be invoked, and may wish to consider how environments might be improved. The other main aim is to use information about the relationships between climates and teacher characteristics, to assist in understanding of influences university teachers have been subjected to, in their own education and socialisation as scholars and teachers.

II. THEORETICAL FRAMEWORK

This study is built on the concept of environmental press developed by Murray, Pace and Stern, and on the methodological achievements of Pace and Stern in operationalising and measuring press (Murray: 1938; Pace and Stern: 1958; Pace: 1964, 1969; Stern: 1970).

Press refers to the characteristic pressures, stresses, rewards and conformity-demanding influences of an environment. The press of an educational environment is generally measured by getting reports of the perceptions of the environment from the students, but in this research the press of the teaching and learning environment that university teachers establish is measured via the perceptions that the university teachers themselves report of the environments they establish.

In this study the climate or press of the environments teachers establish is measured along five constituent press dimensions based on Pace's earlier studies of higher education environments (1969, 1975). These dimensions are named and defined as follows:-

1. Scholarship: This press is established to the extent that scholarly, intellectual and academic pursuits are fostered.

2. Practicality: This press is established to the extent that there is concern for the pragmatic and the practical, and for business-like efficiency.

3. Community: This press is established to the extent that there is a concern for the fostering of friendliness and a sense of community, between teacher and student, and among students.

4. Awareness: This press is established to the extent that there is a concern for the fostering of a sense of personal identity, encouragement of aesthetic expression, and the fostering of a sense of social responsibility.

5. Propriety: This press is established to the extent that there is an emphasis on the environment's being a polite and considerate sort of place, where "proper" behaviours are called for, and where there is some emphasis on taking note of rules or regulations.

The press the teachers report concerning the characteristics of their classes is important information (i) about the teachers and (ii) about the teaching-learning environments.

(i) As for the *teachers*, theory and prior research in personality dynamics, social and developmental psychology and sociology would lead to predictions or hypotheses as to the nature and extent of climate differences, when particular categories of university teachers, be they departmental groups, status groups, the sexes, or groupings based on age or prior school-teaching experience, are compared.

Much discussion has concerned departmental differences, often couched in terms of "Science Versus Arts or the Humanities", and the idea of the "Two Cultures" (Snow: 1959), with some research evidence available to indicate that learning and teaching environments established by teachers in different academic departments do largely accord with the typing or stereotyping arising out of the non-empirically-based discussions. (For example, see Pace: 1964; Pace and Baird: 1966; Astin: 1965; Vreeland and Bidwell: 1966). There is evidence that status groups have important distinctive characteristics, (for example, Gaff and Wilson: 1971), that might well issue in the establishing of differing learning and teaching environments by persons of different status. There would be both a research and an intuitive basis for predictions concerning sex and age differences in learning and teaching environments established, with women probably being predicted as more likely than men to establish nurturant and supportive environments, and age probably being predicted as more likely than youth to establish structured and authoritarian climates of learning and teaching. The literature concerning the psychology and sociology of the school-teaching profession is substantial and indicates some distinctive aspects of that sub-culture, to which a substantial proportion of university teachers have formerly belonged. Intuitively at least, but also on some research basis, university teachers who have formerly been school-teachers might be expected to establish learning and teaching environments that were more planned and organised and perhaps more supportive and authoritarian (Genn: 1970).

This study allows for the testing of some interesting predictions or hypotheses or hunches concerning learning and teaching environments established by university teachers categorised according to department, status, sex, age and prior school-teaching experience, and also provides some evidence of interesting inter-university environmental differences, which themselves might be predictable if full information about major contrasts among universities was available.

(ii) As for the *teaching-learning environments*, the significance of these ultimately lies in their effects on student growth and development. The press of these environments, as reported by the teachers, indicate what sort of teaching-learning environments the teachers have deliberately set up. In the Lewinian equation $B = f(P,E)$, (1936), student behaviour (B) is a function of the student or person (P) and the environment the student experiences (E). The teacher press or climate in this study corresponds to that aspect of the student's environment (E) that the teacher establishes to influence student behaviour. Student behaviour is clearly determined by other environmental aspects than the teaching-learning environment prepared by their teachers, but the importance of this latter aspect or determinant of the student environment would not be questioned.

III. METHODOLOGY

1. Sampling

The data for the study were provided by 796 university teachers drawn from 10 different kinds of departments (English, French, History, Mathematics, Chemistry, Zoology, Economics, Civil Engineering, Law and Medicine) across six Australian universities. Large and small universities, metropolitan and provincial, new and old, were represented, and departments were selected to cover the spectrum of Arts-Science-Professional. All ranks of teachers (Professor to Tutor) were included in the sampling. Categories were established within the sample on the basis of sex, age (Under 33, 33 to 42, 43 and over), and prior school-teaching experience (No teaching, Up to 3 years, More than 3 years).

2. Instrumentation

Fifty teacher press or climate items were the basis for the construction of five scales, each of 10 items, designed to measure the various aforementioned and defined dimensions of teacher press called Scholarship, Practicality, Community, Awareness and Propriety. As noted earlier, these dimensions are well based in theory and research. Each scale was found to have substantial reliability, as indicated by the respective coefficient alphas, viz. .58 for Scholarship, .58 for Practicality, .73 for Community, .83 for Awareness and .77 for Propriety.

3. Statistical Analysis

Simple analyses showed how each of the 50 teacher press items was answered by the sample of teachers as a whole. Discriminant analysis was used to provide a description of the nature and extent of overall climate differences among departments, among status groups, between the sexes, among age groups and among groups of differing prior school-teaching experience. Analyses of variance were focused on each of the five individual climate or press dimensions and the extent to which each of the six teacher attributes or factors (university, department, status, sex, age and prior school-teaching experience) is related to the climate or press dimension, when control of the other five teacher attributes or factors is exercised. In these analyses interest centres on conservative estimates of, say, a departmental effect on the Community dimension of climate, when any possibly confounding effects of the other five factors of university, status, sex, age and prior school-teaching experience are removed i.e. when departments are effectively equated on these other five factors.

IV. THE FINDINGS AND THEIR SIGNIFICANCE

1. The Findings

a. Item-by-item Analyses for the Sample as a Whole

Analyses were made to show how each of the 50 teacher press items was answered, by the sample of teachers who provided data for the study. As examples here of the outcome of these kinds of analyses, note that:-

> *Pertaining to the Scholarship dimension of teacher climate or press:-*
>
> * *52.8% of university teachers in the sample say that they try to push student capacities to the limit.*
>
> * *35.6% say that their teaching is very research conscious.*

Pertaining to the Practicality dimension of teacher press:-

- *44.1% of university teachers say they regularly check up on students to make sure assignments are being carried out properly and on time.*
- *69.2% say they outline the day's lecture or discussion at tht beginning of class.*

Pertaining to the Community dimension of teacher press:-

- *78.3% of university teachers say they go out of their way to help students individually with course work.*
- *81.7% say they ask students for advice and suggestions about the course, etc.*

Pertaining to the Awareness dimension of teacher press:-

- *37.4% of university teachers say they help students to understand their role in contemporary social and political life.*
- *73.8% say they encourage students to express their personal beliefs and convictions.*

Pertaining to the Propriety dimension of teacher press:-

- *39.7% of university teachers say they insist on proper social forms and manners in classes.*
- *13.3% say that their students are required to explain absence from class.*

b. Differences in Teacher Press or Climate According to University, Department, Status, Sex, Age and Prior School-Teaching Experience

The study provides clear evidence that the press or climate of learning and teaching environments that university teachers establish in their undergraduate classes do differ, depending on the teachers' university and departmental affiliation, status, sex, age and prior school-teaching experience. Information was also obtained about the nature and extent of the differences found. Where statistical significance of a difference is not mentioned in what follows, it is at the $P \leqslant .05$ level. In general, findings accord with the kinds of hypotheses noted earlier, but go beyond confirming these, in the information made available concerning the dynamic aspects of inter-group differences.

(i) Departmental Differences With Respect to Teacher Press

When all of the five dimensions or scales of the teacher press domain were treated as the one multivariate domain, there is evidence of a statistically significant discrimination among the ten departments ($P = .0000$).

> *Concerning the way in which they described the teacher press, the departments differed principally along a dimension that involves the extent to which they:- "Emphasise a concern for fostering awareness, friendliness and scholarship, and de-emphasise stress on rules and authoritarian regimentation".*

This manner in which the departments differed was defined by the first and strongest discriminant function arising from a discriminant analysis.

The rank order (highest score to lowest) of the departments on the dimension or function or continuum just described was:- 1. English, 2. History, 3. French, 4. Zoology, 5. Economics, 6. Law, 7. Medicine, 8. Mathematics, 9. Chemistry, 10. Civil Engineering. In other words,

> *when it comes to the matter of teacher press, and of how much departments "Emphasise a concern for fostering awareness, friendliness and scholarship, and de-emphasise stress on rules and authoritarian regimentation English, History and French take the first three places and Mathematics, Chemistry and Civil Engineering take the last three, with the places of the other departments as indicated.*

Conservative estimates of departmental effects or differences, for each of the teacher press scales, were next made. For each of the scales, departments were found to differ, after control on the other five factors of status, sex, age, school-teaching experience and university had essentially equated them across the departments and made possible the conservative estimates of departmental effects or differences, where departmental effects or differences are not confounded with possible effects of the other five factors.

> *In these conservative estimates concerning teacher press for Scholarship, History, Zoology and French were highest and Law, Chemistry and Civil Engineering lowest. For the Practicality dimension of teacher press, Economics, French and History were highest and English, Medicine and Zoology lowest. For the Community dimension, History, Economics and English were highest and Medicine, Law and Civil Engineering lowest. For the Awareness dimension, History, English and French were highest and Civil Engineering, Mathematics and Chemistry lowest. For the Propriety dimension, Civil Engineering, Medicine and Chemistry were highest, and History, French, and English lowest.*

(ii) Status Differences With Respect to Teacher Press

When all of the five teacher press scales were treated as the one multivariate domain, there is evidence of a statistically significant discrimination among the six status groups (P = .0001).

> *Concerning the way in which they described the teacher press, the status groups differed principally along a dimension that involves the*

> *extent to which they:- "Emphasise being friendly, efficient and organised, and de-emphasise stress on academic achievement and excellence, and the obeying of rules and regulations".*

This manner in which the status groups differed was defined by the first and strongest discriminant function arising from a discriminant analysis.

The rank order (highest score to lowest) of the status groups on the dimension or function or continuum just described was: 1. Tutors, 2. Senior Tutors, 3. Lecturers, 4. Senior Lecturers, 5. Readers, 6. Professors. In other words,

> *when it comes to the matter of teacher press, and of how much the status groups "Emphasise being friendly, efficient and organised, and de-emphasise stress on academic achievement and excellence, and the obeying of rules and regulations", the Tutors are first, the Professors last, and places are taken precisely in the order of increasing status.*

Status effects or differences, for each of the five press scales, were next conservatively estimated. The status groups were found to differ on two scales, after control on the other five factors of department, sex, age, school-teaching experience and university had essentially equated these factors across the status groups and made possible a conservative, unconfounded estimate of status effects or differences.

> *In these conservative estimates concerning teacher press, the status groups' press for Scholarship is almost exactly in the order of decreasing status (Professors first, Tutors last, with only a reversal of the places of Senior Lecturers and Lecturers disturbing the perfect order). Concerning Awareness, the order again is somewhat one of decreasing status (Professors and Readers in the lead, Tutors last, with Senior Tutors third, Senior Lecturers fourth and Lecturers fifth).*

(iii) Sex Differences With Respect to Teacher Press

When all of the five scales of the teacher press domain were treated as the one multivariate domain, there is evidence of a statistically significant discrimination between the sexes (P = .0000).

> *Concerning the way in which they describe the teacher press, the sexes differed along a dimension that involves the extent to which they:- "Emphasise being friendly, efficient and organised, and de-emphasise stress on attention to rules and regulations".*

The manner in which the sexes differ is defined by the discriminant function arising from a discriminant analysis.

The rank order (higher score to lower) of the sexes on the function or dimension or continuum was 1. Women, 2. Men. In other words,

> *when it comes to the matter of teacher press, and of how much the sexes "Emphasise being friendly, efficient and organised and de-emphasise stress on attention to rules and regulations", the women take first place.*

Sex effects or differences, for each of the five press scales, were next conservatively estimated. The control of the five factors, of department, status, age, school-teaching experience and university, essentially equates these factors across the sexes and makes possible a conservative, unconfounded estimate of a sex effect or difference.

> *In these conservative estimates of sex effects relating to teacher press, women gain significantly higher scores than men on Scholarship, Practicality and Community.*

(iv) Age Differences With Respect to Teacher Press

When all of the five scales of the teacher press domain were treated as the one multivariate domain, there is evidence of a statistically significant discrimination amongst the three age groups (P = .0000).

> *Concerning the way in which they described the teacher press, the age groups differed principally along a dimension that involves the extent to which they:- "Emphasise authoritarianism and de-emphasise friendliness".*

This manner in which the age groups differ was defined by the first and strongest discriminant function arising from a discriminant analysis.

The rank order of the age groups (highest score to lowest) on the function or dimension or continuum just described was 1. 43 and over, 2. 33 to 42, 3. Under 33. In other words,

> *when it comes to the matter of teacher press, and of how much the age groups "Emphasise authoritarianism and de-emphasise friendliness", the oldest age group comes first, and the places are taken precisely in the order of decreasing age.*

Age effects or differences, for each of the five press scales, were next conservatively estimated. The control of the five factors, of department, status, sex, school-teaching experience and university, essentially equates these factors across the age groups and makes possible a conservative, unconfounded estimate of an age effect or difference.

> *In these conservative estimates of age effects relating to teacher press, differences emerged only for Scholarship, where the order (highest score to lowest) was 1. 33 to 42, 2. Under 33, 3. 43 and over.*

v. Differences Based on School-Teaching Experience With Respect to Teacher Press

When all of the five scales of the teacher press domain were treated as the one multivariate domain, there is evidence of a statistically significant discrimination among the three school-teaching experience groups (P = .005).

> *Concerning the way in which they described teacher press, the school-teaching experience groups differed principally along a dimension that involves the extent to which they:- "Emphasise efficiency, organisation and fostering achievement".*

This manner in which the school-teaching experience groups differ was defined by the first and strongest discriminant function arising from a discriminant analysis.

The rank order of the school-teaching experience groups (highest score to lowest), on the function or dimension or continuum just described, was:- 1. More than 3 years, 2. Up to 3 years, 3. No teaching. In other words,

> *when it comes to the matter of teacher press, and of how much the school-teaching experience groups "Emphasise efficiency, organisation and fostering achievement", the group with most teaching experience is most characterised by the description, and the description becomes less characteristic with decreasing teaching experience.*

School-teaching experience effects or differences, for each of the teacher press scales, were next conservatively estimated. These estimates involve control of the other five factors (of department, status, sex, age and university), where such control essentially equates these other five factors across the school-teaching experience groups, and makes possible the conservative, unconfounded estimate of a school-teaching experience effect or difference.

> *There was a conservatively estimated school-teaching experience effect for the Practicality and for the Propriety dimensions of teacher press. For Practicality, the group with the most prior school-teaching experience scored highest, and the group with no school-teaching experience scored lowest. For Propriety, the highest scoring group was that with "Up to 3 years" school-teaching experience, with those with no school-teaching experience scoring lowest.*

vi. University Differences With Respect to Teacher Press

Because of the differing departmental constitutions of the six universities, the most meaningful study of university effects or differences, with respect to teacher press, centres on the conservative estimates of university effects or differences for each of the press dimensions. The control of the five factors of department, status, sex, age and school-teaching experience essentially equates these factors across universities, and makes possible a conservative, unconfounded estimate of a university effect or difference.

> *In these conservative estimates of university effects, concerning teacher press, there was only one such effect, for Practicality. That universities should differ on this dimension is interesting, as would be the possible explanations of this.*

2. The Significance of the Findings

The findings of this study of the environments for learning and teaching that university teachers establish in their undergraduate classes appear to be significant for a number of reasons:-

1. Little information about what Australian university teaching and learning environments are really like, and about what they are doing or intended to do, to students or for students, is available.

2. The study's findings contribute an empirical basis to discussions of the goals of the universities and departments, and of the nature and the quality of the teaching therein.

3. Current discussions, [(stimulated, for example, by the Williams Report, Commonwealth of Australia; 1979)], about the training of university teachers and the evaluation of university teaching, may be assisted by reference to the findings of this study.

4. Findings of the study may be pertinent to further theorising and research concerning the formation and development of university teachers by the complex interaction of their personality characteristics and their membership of their various groupings on the basis of university and departmental affiliation, status, sex, age and prior experience in school-teaching.

5. The study might usefully be replicated in other types of higher and further education institutions, in Australia, and in universities and other institutions overseas, to yield interesting comparative data.

6. The kind of study might usefully be employed in a "before and after" mode, to study changes in educational environments that might arise from intervention programmes.

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PROFESSIONALISM IN THE UNDERGRADUATE CURRICULUM

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The development of attitudes is implicit in all undergraduate courses, yet in comparison with the development of knowledge and skills, its specification in most curricula tends to be given little more than passing reference. Bloom[1] maintains that this is because teachers are reluctant to teach attitudes objectively because of the Orwellian overtones such teaching raises. This overtone must be acknowledged, but Bloom[1] contends that far from "brainwashing" students,

> If the dangers of 1984 society are to be avoided, (educators) have an obligation to work toward the realisation of affective objectives.

In other words, the haphazard teaching of attitudes is more likely to result in their unquestioning acceptance by students, through the processes of indoctrination and socialisation, than is their objective specification. A danger even more likely where students are sheltered from the challenges of other value systems as they are in professional courses which isolate them in exclusive curricula.

Scriven[2] goes further than to defend the teaching of attitudes. He maintains that failure to face up to the responsibility is "not just cowardice, but incompetence, professional incompetence".

It thus becomes the responsibility of teachers, particularly teachers in professional schools and colleges, to specify clearly those attitudes they intend to develop, the methods which are to be used, and the purposes and methods by which they are to be assessed. Teachers then will have objective goals which can be rationally justified, and students can consciously develop and evaluate their own attitudes and those to which they are subjected.

There are, of course, some problems associated with this approach to the teaching of attitudes. Most of them will have a healthy effect by the challenge they pose to the attitudes held by teachers and other socialisers. A greater problem is that students, knowing certain behaviours are deemed desirable, may exhibit behaviours, not as genuine indicators of desirable attitudes, but solely for the purpose of influencing teachers. This only has significance where such a display affects a summative assessment. Where this pressure to conform to expectations is removed, a more honest approach to the assessment, clarification and internalisation of desirable attitudes is likely.[1]

The assessment of attitudes then, should be for formative rather than summative purposes. That is, the purpose of the assessment is to assist the student to modify personal attitudes so that they are consistent with the broad principles of professionalism and congruent with personal values rather than for the awarding of grades.

The problem of determining just what attitudes a student holds remains. It is not possible for a teacher to directly identify what attitudes a student holds; merely behaviours, verbal and non-verbal, which are expressions of those attitudes. The teacher has to be guided by those indirect indicators when evaluating the need or the effectiveness of attitudinal development. It thus becomes advisable to make a list of behaviours which one expects the student, who holds those attitudes, to display. For example, a student who holds the attitude that knowledge is not for exclusive use, but is to be shared by colleagues, could be expected to demonstrate that he, or she, holds this attitude by contributing to small group learning activities or by assisting colleagues with learning, and would not be seen to withhold or hinder others' learning. Check lists may be kept to note the frequency with which the behaviours are observed, but to do this on an individual basis for every student with any degree of reliability is a daunting task, and unless used for summative evaluation purposes is of little point. It is sufficient to observe that the behaviours are performed by a large proportion of the students to determine attitudinal development. Similarly, should any students display behaviours which are contrary to those deemed as indicators of desirable attitudes, those contra-indications can be used in conference with students for formative self-evaluation and counselling.[1]

As a further aid to the identification of attitudes, questions can be developed to meet the specific requirements of a course. To expect any degree of validity, such questions require that answers can be given without fear of the consequences. Of necessity, their function is limited to formative evaluation so that the effectiveness of the educational programme can be assessed and corrective teaching and counselling carried out where necessary.

METHODS OF TEACHING ATTITUDES

Cognitive techniques such as argument and persuasion are effective means of changing attitudes as has been seen by the indoctrination of prisoners of war, political campaigns and day-to-day advertising. These techniques are particularly effective when:

- The credibility of the persuader is high.
- The argument is based on fact and logical reasoning.

* The listener has little experience of the concept.
* The argument is only moderately different from the listener's own position.
* The listener is isolated from counter influences.[3,4,5]

It is, therefore, understandable that teachers in professional schools where these influences operate, are reluctant to use cognitive techniques to change attitudes. Students' rights to free choice of attitudes, where choice is possible, are not in jeopardy, however, provided students are encouraged to discuss and challenge arguments objectively. Indeed, the process is likely to assist students to arrive at conclusions consistent with their own value system and those of the profession to which they are to belong.

While the teaching of attitudes by cognitive techniques requires recognition of the attitudes which are to be developed, the socialising influences which affect attitude development usually operate without objective acknowledgement of their effects. Indeed, for the most part they are unconscious modifiers; unconscious in both teacher and student alike.

One of the greatest influences in the undergraduate professional course is the example of the student's mentors who are usually members of the profession to which the students aspire. These mentors become the students' models of professionalism, and though not a characteristic cross section of the professional group, subtly influence attitudes towards professional behaviour. The idiosyncratic behaviours of mentors often become internalised by the aspiring professional. Unfortunately, not only is this model often an academic and teacher, and therefore atypical of most professional practitioners, but also the students do not get a rounded view of this model. For example, in a clinical setting, in the interests of the patient, a teacher often gives a display of finite wisdom and unchallengeable truth, and discourages questioning which might adversely affect the confidence of the patient. Ideally, this situation should be followed up by an explanation of the uncertainties, probabilities and options which the teacher considered. Nor does the student see this model of professionalism in the private role of researcher and learner; the ongoing basis of expertise. The effect of this biased view may well give the student the notion that a professional has finite, unchallengeable wisdom.

The socialising influence of paraprofessionals, such as nurses and technicians, also are powerful influences in modifying student attitudes. So is the influence of patients with whom the undergraduate, such as medical and dental students, have dealings.[3]

While some of these influences may assist in the development of attitudes consistent with the professional ideal, others may not. For example, a patient or paraprofessional may exhibit unwarranted deference to an undergraduate, and so possibly instil notions of importance and infallibility detrimental to attitudes towards expertise.

A course which develops attitudes should not overlook the knowledge and skills necessary for their development.[2] These may be knowledge of sociological considerations affecting the delivery of professional service, or knowledge of the scientific methodology on which professional expertise is based. The necessary skills may be cognitive process skills to evaluate expertise or the interpersonal skills needed to interpret the needs of patients.

The teaching methods employed to develop the supportive skills and knowledge can, of themselves, assist or constrain their development. Didactic methods, by definition, are less likely to develop the skills of learning and interpersonal transactions than heuristic methods. For example, teaching methods which allow students to resolve problems with a minimum of teacher intervention will encourage students to research and learn independently. Similarly, the environmental factors in the teaching situation, such as seating and grouping arrangements, will affect student opportunities to practise the skills of interpersonal relationships.

A programme of professional development should, then, identify the attitudes to be developed, the behaviours which indicate the acquisition of attitudes, the cognitive methods and socialising influences to be used, the supporting knowledge and skills to be taught, and the purposes and methods of evaluation.

Following the paper, a course of attitude development was described. The means of establishing aims, objectives and criteria of attitude development were outlined and the results of the course in terms of staff and student outcomes was reported.

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RELEVANCE IN COURSES FOR PROFESSIONALS

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When designing curricula teachers are expected to use each of three perspectives - subject-oriented, student-oriented and career-oriented. A great deal has been written about what to teach and how to teach it in each subject. The higher education units provide information and ideas for the student perspective. By comparison, the information and ideas for developing the career perspective are sparse, often vague and sometimes conflicting. Nevertheless, institutions of higher education are being pressed by the politicians and other community leaders to make their courses more relevant to the employment of their graduates.

In the session it was planned to examine briefly:

- what ideas and information have emanated from various sources;

- what could be done to improve the use of this perspective in reasonable balance with the others.

The following notes were distributed.

AVAILABLE INFORMATION

There are four types of information available on the relation between careers and vocational training.

1. Broad statements about the desirability of relating training to careers and the directions in which curricula should be developed. These can be the stimulus for change but they are of little use in making the specific decisions required in curriculum design. Politicians and captains of industry aim such statements at academics. Leading academics make similar statements about the benefits of education and how graduates could be used more effectively. The recommendations of committees reporting to governments or professional associations are usually in this category.

2. Statements about what particular careers should be like from some 'panoramic' viewpoint. These are valuable starting points for the development of aims and objectives. Typical sources are professional associations, personnel managers and departmental managers. Careers advisers (official and unofficial) produce similar statements, but they are probably based on information supplied by the people mentioned. Some of the studies made specifically to assist the committees referred to in 1. contain such information.

3. Statements about what a particular career actually involves. These are valuable indicators of the realities. Differences between these statements and the preceding and the succeeding groups are a measure of what must still be done by all responsible for career development. Recent graduates are the sources of such information. A few of the studies made for the investigating committees contain information of this nature.

4. Statements about how a particular career, and the necessary preparations for it, appear from a 'worm's eye' view. They come from secondary and tertiary students and are valuable indicators of what must be done to present a true and understandable picture of a career. Occasionally the studies made for the committees have included such information.

HOW THE INFORMATION WAS OBTAINED

The professional associations and managers need no prompting to make statements like those in 2. above. Nevertheless, the task of obtaining specific guidelines for curriculum design has been made easier when they have been asked specific questions.

Young graduates and students do not often make statements that appear in print without some prompting and, perhaps, some assurance of anonymity. Information from these sources has been via questionnaires and interviews:

To what extent are any deficiencies in the available information ascribable to the questions asked?

EFFECTS OF THE INFORMATION

Changes have occurred. The number and the extent of the changes have fallen a long way short of the recommendations. Most changes are the result of the enthusiasm and dedication of individuals and small groups. They often last no longer than the presence and enthusiasm of the originators. Few developments have originated from changes in the policies and practices of universities, etc., professional associations, governments or corporations.

What sorts of actions can the individual teacher take in response to the information available?

ILLUSTRATIONS

A collection of extracts from reports, papers and conference proceedings listed in 'References' was given to those who participated in the discussion.

DISCUSSION

The participants in the discussion were teachers from a variety of professions within the medical sciences, social sciences, law and engineering. The views expressed were of the nature that the major concern of teachers should be to develop the future practice and status of their profession. This can be properly achieved through enthusiasm of teachers for particular aspects of the underlying discipline. Formal contact with the profession is best maintained through advisory committees that include both managers and practitioners in the profession.

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DIFFERENCES IN THE ORGANIZATION OF TEACHING AND LEARNING AT ENGLISH AND GERMAN UNIVERSITIES

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1. INTRODUCTION:

Students at West German universities study approximately twice as long as their fellow students in England. Whereas the normal course at an English university lasts about three years, German students study on average more than six years before they take their first degree.[1] This problem, which has become even more severe during the last few years[2], has been a major concern for university reformers and politicians. There has been a long-lasting debate about whether or not and how to shorten the courses and generally how to reform university education in West Germany. The Bavarian State Institute for Research in Higher Education[3] was, within this context, interested in looking abroad for some possible answers. Thus, the implicit purpose of our comparative project on the "Organization of teaching and learning in English and German universities" is to clarify whether the English example makes it desirable and feasible to shorten and reorganize the university courses in West Germany. In this paper, I shall try to summarize some of the major differences between the two systems and to provide a tentative evaluation.

However, I would like to qualify a few points in advance. First, the information which will be presented here is of a rather general kind. This is not only due to the fact that our project is still in the making. It has also to do with the broad and complex subject-matter we are dealing with. Comparative education is primarily concerned with structural aspects. Second, we have decided to pre-suppose a functional equivalence of the two university systems on a very fundamental level. I.e., we assume that in the two countries the universities are comparable at least insofar as they essentially fulfill all the major functions (professional training, research, etc.) which are vital for the survival of industrial societies. Only under this assumption it seems to make sense to compare different educational models in order to search for new and possibly more efficient methods and patterns. Third, the word 'organization' in the title of this paper should not be interpreted too narrowly in its sociological meaning. Rather, it is meant to comprise the main normative and structural aspects of university education in the two countries. Fourth, it should be pointed out that it is extremely difficult if not impossible to compare the actual contents of courses and exam requirements. It cannot, however, be denied that it would be very useful, if it could be done. We shall look into this problem more carefully during the further development of our project. Fifth, we include in our study only England and Wales, and not Scotland. The Scottish system is not only very distinct from the English one, but also not dissimilar enough from the German one. And finally, we are not dealing with the whole tertiary sector, but only with universities. The reason is that the other institutions of higher education in West Germany anyway have shorter courses and seem generally to be better organized than universities.[4]

In the following, I shall look at three broad areas. They are all of central importance for an understanding of the differences between the two university systems, although they shall not be given the same amount of attention each. The three areas are:

- Aims and purposes
- Transition from school to university
- Modes of instruction

2. AIMS AND PURPOSES:

University functions have, depending on the country and the point in history, changed in a variety of ways. Especially recently, universities had to undergo major upheavals. For instance, the universities in most Western industrial societies have immensely expanded over the last two decades. In West Germany the number of students has quadrupled during that time.[5] Nevertheless, some basic functions have remained stable since the nineteenth century.

For England, these essential aims have been described in the Robbins Report. The authors begin with "instruction in skills suitable to play a part in the general division of labour"[6], i.e. professional training. They emphasize, however, that "the aim should be to produce not mere specialists but rather cultivated men and women".[7] Then follows the research function or, as they call it, "advancement of learning":

> "The search for truth is an essential function of institutions of higher education and the process of education is itself most vital when it partakes of the nature of discovery."[8]

Finally, they Robbins Report describes a university aim which is rather distinct from the German university tradition: "the transmission of a common culture and common standards of citizenship." And:

> "We believe that it is a proper function of higher education, as of education in schools, to provide in partnership with the family that background of culture and social habit upon which a healthy society depends."[9]

The key-words here are "common standards of citizenship" and "social habit", since they refer to individual and group characteristics which cannot solely be attained by purely academic or scientific means. Also, the mentioning of schools in this context is significant, since this is quite incompatible with the self-image of German universities and their insistence on 'Wissenchaft'. For an understanding of the English university tradition the notion of "liberal education" is essential.

The traditional German university aims were shaped around 1800, when educationists and high-ranking administrators like Schleiermacher and W.v. Humboldt, influenced by idealist philosophy, undertook to reform the educational system of Prussia. They formulated, somewhat belatedly in comparison to France and Britain, the democratic and emancipatory intentions of the rising bourgeoisie. These included the ideal of an independent and educated individual, a person who should be enlightened enough to be able to contribute to a rational organization of state and society. The way to such rationality was supposedly through philosophical knowledge which had to be disseminated among a wider circle of people at university. Humboldt specified this educational programme by his concept of *Bildung durch Wissenchaft* (education through science[10]). According to this, valid academic knowledge and truth "as such" could only be discovered by actively participating in the process of research. Each student was supposed to search, together with his teachers, for "objective" knowledge, thus helping to push forward the limits in his academic subject.[11]

While there has been since Humboldt at German universities a strong emphasis on the research function (comparable to Robbins' "advancement of knowledge") and while this was later complemented by the task of professional training (now the most important function of German universities), liberal education or even character formation in the tradition of the English gentleman-ideal of education[12] has not played an important role in the German university tradition. Because Humbolt's concept of *Bildung* was primarily related to the participation in a research process, but not, as in the case of England's educational tradition, to a specific communal life-style or to prescribed modes of behaviour and taste.

This cannot be discussed here at length. But it had to be mentioned, since the lack of this university function in Germany[13] explains another major difference with regard to aims and purposes of university education in the two countries. Whereas in Germany professional training since Humboldt was associated with a deep penetration of science, the English intentions were always directed more to the student than to the subject.[14] Although the typical English university course is done in a single subject and is therefore rather specialized (a fact which will be taken up again in connection with a short discussion of the transition from school to university), the overall aim is not to educate the student to become a perfect scientist or researcher, but to develop methodolical thinking and the ability to tackle new problems in a systematic manner. English university curricula are therefore clearly circumscribed and the body of transmitted knowledge is fairly codified (although regularly revised). In Germany, in contrast, curricula are often vague (in the arts and social sciences even more so than in the natural sciences) and the actual contents of lectures and seminars often directly reflect the present research activity of the lecturer. Whereas the English concept is directly in accordance with the expectations of prospective employers who look for widely educated personalities who will receive their additional, necessary skills through "on the job training", in West Germany there is no common understanding about the respective aims. On the one hand, representatives from industry increasingly demand shorter courses and more "exemplary" and practical learning.[15] They are supported by such influential and independent bodies as the *Wissenschaftsrat* ("science council").[16] On the other hand, the universities stick to the Humboldtian inheritance, not surprisingly, since also professors have a vested interest.[17] Reforms, as they are suggested from several sides, would mean a lot of additional work. Thus it is tempting to cling to the Humboldtian ideal of the "unity of research and teaching". And the students themselves are often afraid that such reforms would leave them with the same amount of learning to be done in a shorter period of time and that universities would increasingly become like schools.[18]

Thus, varying ideals of university education can be said to explain to a certain extent the differing lengths of studies in the two countries. Another major reason has to be seen in the very different relationships between universities and secondary schools. This can only be sketched very briefly on this occasion.

3. TRANSITION FROM SCHOOL TO UNIVERSITY:

The relationship between English upper-secondary schools and universities, and in particular the influence of the latter upon the former, are crucial for an understanding of the fact that university studies in England normally only last three years.[19] The situation can be summarized in two major points.

First, universities in England are "private" and to a large extent autonomous (and not directly state-controlled, as in Germany).[20] They have complete freedom in all aspects of the organization of teaching and research, as well as in the independent selection of students and staff. Thus they admit students solely on the basis of their own capacity calculations. Furthermore, only such students are accepted who seem to fit into one of the specific university courses. This autonomy in selecting students is therefore the reason for the universities' interest in exercising some influence on what is happening at school. Because in addition to being able to select students on the basis of ability and suitability for the course programme, it is even more in the interest of the university to be able to shape directly the curricula and exam requirements of upper-secondary schools. For this purpose, the universities are grouped together into Examination Boards which draw up curricula for all subjects.

Second, upper-secondary schools in England are interested in adopting one of the syllabuses offered by the Examination Boards, since they want their pupils to be well prepared for university entrance. This is particularly important, since on average only just over 50 per cent of all applicants get a place at an English university.[21] As the universities require their prospective students to have passed A-levels in those subjects (if they exist at school) which they intend to study[22], the schools cannot but accept the curricular recommendations of the Examination Boards. This has led to an early and strict specialization at the upper-secondary school level, which in return ensures high entrance standards at university. This is another reason why universities can carry out rather specialized courses of acknowledged academic quality in a comparatively short period of three years.

In contrast to the close interdependence between secondary schools and universities in England, the traditional German Gymnasium[23] is only loosely connected with the university. Although its role has been defined in the early nineteenth century by the Prussian reformers as a platform for university studies,[24] the result turned out to be completely different from the English model. Since university education was meant to be research oriented, deep, and highly academic, secondary education was supposed to be as broad and comprehensive as possible. From that evolved the traditional ideal of taking approximately ten to twelve subjects up to the final Abitur exam. Allgemeinbildung (general education) remained the central aim, despite a controversial debate about its usefulness which began in the early nineteen-sixties, leading to a concentration on fewer subjects at the Reformierte Oberstufe (reformed upper-secondary school).[25] The reform, implemented primarily in order to improve the pupils' ability to study at university (Studierfahigkeit), has however been attacked most by the universities. They claim that despite the obligation for pupils to take at least one discipline from each of the major subject areas, they are over-specialized and reveal severe gaps of knowledge in other fields when they enter higher education.[26]

These short references may suffice to demonstrate that secondary schools in West Germany, although they have to a certain extent moved away from the traditional concept of general education, are, at least in comparison with England, far from being directly influenced by universities with respect to curricula or exam requirements.[27] Together with the fact that traditionally every successful secondary school leaver has the constitutional right to study at any university and in any field[28], the described lack of university influence upon the Gymnasium necessarily means a lengthening of courses at West German universities. Because school leavers with very heterogeneous educational backgrounds have to be catered for, and university coures cannot be as specialized as in England.

4. MODES OF INSTRUCTION:

The last of the three broad areas which are central in a comparative analysis of English and German university education and which are essential for an understanding of the marked difference in the length of courses in the two countries, concerns the pattern of teaching, learning and examining. Although this is probably the most important aspect of the above mentioned study which we are currently pursuing at our institute, since it is directly relevant for practical reform intentions, I shall nevertheless deal with it only in a cursory manner. First, because most aspects of university instruction and examination in England are presumably not very different from the Australian situation and second, because the explanatory implications with regard to the different lengths of studying become, I hope, immediately evident.

A general difference between the two university systems has to be mentioned first. Although we are in both countries looking at first degree courses, it is necessary to point out that in Germany there does not really exist a distinction between undergraduate and postgraduate studies. M.A.s, diplomas, state exams, etc., all approximately on the same level, are besides doctorates the only university degrees to be aspired to. And even Ph.D.s were in the past often taken as a first degree.[29] Since, on the other hand, the amount of Ph.D.s taken in Germany is not much different from the percentage of all higher degrees in England[30], and since in both countries the vast majority of students leaves university after having passed their first degree, the two situations are structurally comparable after all. The main distinction remains that in the one case the transfer from higher education to the employment system happens after three, and in other case after more than six years.

It is natural under these circumstances to enquire whether university courses in England are more tightly and efficiently organized than in Germany. Although it is dangerous to generalize here, and despite differences which in Germany certainly exist between, for instance, the natural sciences or medicine, on the one hand, and some social scientific or arts subjects, on the other hand, the modes of instruction and learning in England seem indeed to be more intensive, efficient and transparent. Only a few indications of this can be given here.

First, all university courses in England are clearly defined and their contents remain stable for sufficiently long periods of time for sixth-formers, students and staff to be able to receive long-term guidance and reliable information. This does however not imply that the universities syllabuses prescribe rigid one-way roads to a degree. Rather, a large variety of options and combination of subjects is usually available. At German universities, on the other hand, curricula, if they exist at all, remain often vague and lead to all sorts of problems of orientation for students as well as for lecturers. Besides the above mentioned Humboldtian tradition of the "unity of research and teaching" which often enough prevents university teachers from being interested in the elaboration of at least medium-range curricula, also the students' traditional freedom to change university as often as they wish, is responsible for this situation. Also the students' briefly mentioned freedom to choose their dates of examination, which still applies in many subjects, contributes to the organizational uncertainties.[31]

Furthermore, teaching at English universities is usually done in small groups, i.e. tutorials or seminars. Lectures are sometimes not more than voluntary additions to these forms of instruction. The tutor is then able to require regular amounts of reading and essay-writing, thus exercising a subtle but effective kind of control.[32] At German universities, in contrast, lectures are the predominant form of teaching, and seminars often contain 30 or more students. The amount of written work is minimal; and the habit wide-spread not to attend lectures or seminars at all.

Finally, in order to refer to one more of the most obvious structural differences, the amount of teaching and counselling done by English university lecturers should be mentioned. Although this cannot be quantified here, it seems to be correct to say that most university teachers in England, regardless of their status, are heavily involved in teaching. Besides lecturing and giving seminars and/or tutorials, they usually are also acting as "personal tutors" for several students. This individual and time consuming responsibility for students is alien to the German university. The students there are largely left to themselves, which no doubt adds to their numerous difficulties of orientation. Universities, in this respect, are often experienced by students as anonymous, uncommunicative and estranging.[33] This may well be the most important reason for the excessively long time it takes, at least in international comparison, to receive a first degree at a West German university.

5. CONCLUSION:

Maybe the situation in West German universities is not quite as bleak as it appears from the above description; and maybe the English model of university education is not altogether perfect either. But as was pointed out earlier, summaries of work done in comparative education sometimes tend to be swift and indiscriminating. Nevertheless, it is probably correct to look for an explanation of the main problem in question, namely the different lenths of university studies in England and Germany, at those three areas: the difference in aims and purposes; the very distinct relationships between secondary schools and universities; and the actual modes of teaching, learning and examining. It should however be added that an analysis of this kind, even if it were carried out with greatest care, must not be mistaken for a causal explanation. Since causality in this field of investigation can only be historical.

NOTES AND REFERENCES:

1. Wissenschaftsrat, Empfehlungen zum zehnten Rahmenplan fur den Hochschulbau 1981 - 1984, Cologne, 1980, p. 40; West German students can determine for themselves, when they wish to take their exams.

2. ibidem.

3. Arabellastr. 1, 8 Munich 81, West Germany.

4. Comprehensive descriptions of the West German educational system are contained in: Conference of Ministers of Education (KMK), Das Bildungswesen in der Bundersrepublik Deutschland, Luchterhand: Neuwied, 1977; and: O. Anweiler et. al. (eds.), Bildungssysteme in Europa, Beltz: Weinheim, 1981.

5. Cf. C. Gellert, 'Employment chances and occupational areas for West German university graduates with teaching qualifications', in: D. Billing (ed.), Course Design and Student Learning, SRHE: Guildford, 1978, p.117.

6. Committee on Higher Education, Higher Education (Robbins Report), H.M.S.O.: London, 1963, p.6.

7. ibidem.

8. op.cit., p.7.

9. ibidem.

10. "Wissenschaft means knowledge and science. Because of the English equation of science and natural science, 'science' is frequently too restricted a translation of 'knowledge' too loose." J.J. Shapiro, 'Toward a Rational Society', Heinemann: London, 1971, p.vii - Also, Shapiro: "Bildung literally means 'formation', but also 'education' and (cultural) 'cultivation;. In German these narrower meanings always connate an overall developmental process." Op.cit..

11. Cf. W.v. Humboldt, Schriften zur Politik und zum Bildungswesen, Werke, vol. IV, Wissenschaftliche Buchgesellschaft: Darmstadt, 1964.

12. Cf. A.H. Halsey, 'British Universities', in: Archives Europeennes de Sociologie, III, 1962, p.91; and L.H. Wilkinson, 'The Gentleman and the Maintenance of a Political Elite', in P.W. Musgrave, Sociology, History and Education, London, 1970, pp. 126 ff.

13. Strictly speaking, there was no absence of this function in Germany, but a latency. Since all organizations and institutions exercise specific formative influences upon their members, some kind of socialization must also have occurred within German universities. This is surely significant for a historical and political interpretation of the German university, but cannot be pursued here.

14. E. Ashby, 'The Future of the Nineteenth Century Idea of a University', in: Minerva, VI, 1, autumn 1967, p.15.

15. Documented recently again in a study of industrial expectations, carried out by "Infratest: (Munich) and the Federal Ministry of Education. Cf. Suddeutsche Zeitung, 28.4.1981, p.25.

16. Wissenschaftstrat, Empfehlungen zur Differenzierung des Studienagebots, Cologne, 16.11.1978.

17. Barbara M.-L. Steiger of the West German Vice Chancellors Conference has recently demonstrated this position: B.M.-L. Steiger, 'Studierfahigkeit aus der Sicht der Hochschulen', paper presented at the Second German-British conference on contemporary educational issues: Secondary schools and higher Education, Bielefeld University, 1-4, April 1981.

18. However, German students who have spent some time at an English or American university, are often impressed by the transparency and efficiency which they experienced. Cf. C. Gellert, G. Schindler, Erfolgsanalyse zum Anglistenprogramm, Sonderheft 1, Beitrage zur Hochschulforschung, Munich, 1980.

19. For the following, cf. C. Gellert, 'Zum Ubergang von der Schule zur Universitat in England', paper presented at the Second German-British conference on contemporary educational issues (see note 17); published in: W.E. Fthenakis, G. Scheid, A.O. Schorb, W. Steinmann (eds.), Bildungswirklichkeit, Bildungsforschung, Bildungsplanung, Auer: Conauworth, 1981, pp. 95-106.

20. Cf. J. Jadot et. al., 'Hochschulmanagement in Europa', in: I. Bender, W. Henning, Universitatsmanagement, Bericht zur Lage (OECD, Survey of the State-of-the-Art and likely future Trends of University Management in Europe), University of Trier, Dec. 1980, pp. 5-35.

21. Cf. (for 1972/73) WEMA Dokumentation, Darstellung des Hochschulzugangs in ausgewahlten Landern, Bildungswesen im Vergleich, 4, Cologne, 1974, p.33; and (for 1979/80) University Grants Committee, Annual Survey, Academic Year 1978-79, HMSO: London, p.21.

22. The Association of Commonwealth Universities, Compendium of University Entrance Requirements for Frist Degree Courses in the United Kingdom, 1979.

23. The Gymnasium, comparable to the English Grammar School, is the dominant form of secondary schooling within the selective educational system of West Germany. Comprehensive schools are, unlike in England, relatively rare here.

24. Cf. B. Gafert, Hohere Bildung als Antiaufklarung, Entstehung und Bedeutung des preuBischen Gymnasiums, Campus: Frankfurt, 1979.

25. Cf., for instance, P. Lohe, et. al., 'Die Reform der gymnasialen Oberstufe und ihre Verwirklichung in den Landern der Bundesrepublik Deutschland', in: Max-Planck-Institut fur Bildungsforschung, Bildung in der Bundesrepublik Duetschland, vol. 2., Rowohlt: Hamburg, 1980, pp. 1177-1213.

26. Cf. A. Morkel, 'Was erwartet die Universitat vom Gymnasium?', in: Alexander von Humboldt Stiftung, Mitteilungen, 35, July 1978, pp. 1-6; also P. Meinberg, 'Zunehmende Kluft zwischen Schule and Universitat', in: Deutsche Universitatszeitung, 19/1978, p. 604.

27. Cf. C. Gellert, 'The West German reform of the upper-secondary schools and its implications for the universities', in: European Journal of Education, 2, 1981.

28. During the last two decades, in a small number of subjects (such as medicine) a Numerus clausus was introduced for capacity reasons.

29. A few years ago, the Hochschulrahmengesetz (Federal Framework Law for Higher Education) determined that another university examination had to be passed before a Ph.D. could be attempted.

30. The number of Ph.D.s in Germany and the total of higher degrees in England has during the last few years in both cases amounted to roughly 10% of all degrees taken each year. Cf. Der Bundesminister fur Bildung und Wissenschaft, Grund- un Strukturdaten 1980/81, Bonn, Sept. 1980, p. 1980, Kohlhammer: Stuttgart, 1980, pp. 91-93; and for England, Central Services Unit for Careers and Appointment Services (ed.), First Destination of University Graduate 1976-77, Manchester, no. year, pp. 18019, table 3.

31. A good account of the respective university tradition in Germany is given by A. Flexner, Universities, American, English, German, Oxford University Press: New York, 1968 (first published 1930).

32. This system has a strong integrative effect and was, together with the communal life-style at many universities, responsible for the relative peace at times when elsewhere in Europe students were engaged in aggressive political actions. Cf. C. Gellert, 'Studentenbewegung und Studienorganization in England', in: H.-J. Diller, et. al., (eds.), anglistik and englishchunterricht, Sprachunterricht, Volksfreund-Druckerei: Trier, 1977, pp. 213-223.

33. Cf. W. Englemann, S. Vahrenkamp, 'Grunde fur lange und kurze Studiendauer', in: Deutsche Universitatszeitung, 22/1978, pp. 690-692.

Part III:

Approaches to Planning

1. Curriculum design by objectives: two case studies
   R. Bawden, J. Drinan, D. Lundie-Jenkins

2. Planning for distance learning
   N. Westwood

3. Group development and the planning of experimental learning programmes
   J. Crawley

4. Contract learning
   T. Dare, M. Faris, and B. Cargill

INTRODUCTION TO PART III

Consideration of the process of planning shifts our attention from a concern for the general influences which shape the context of teaching and learning to a concern for the ways decisions are made regarding action in the future. In planning the means by which teaching and learning should occur decisions are likely to be made in relation to the general context and environment of teaching and learning, the planning process itself, and the format and presentation of the plan. Varying degrees of concern for each of these aspects surface in the papers contained in this section. The first paper indicates that the course planning process must encompass wide ranging aspects of philosophy, educational aspirations, curriculum design and characteristics of the learning situation. The second paper highlights similar concerns in relation to planning for distance teaching. The remaining two contributions describe specific planning issues which were discussed in workshops on experiential learning programmes and contract learning.

John Drinan and his colleagues argue that the traditional methods of curriculum design for professional courses have been inappropriate. Using the example of agriculture they describe a planning process which involved the course planning group in identifying the characteristics and attributes of the future graduate, expressing these attributes in the form of specific objectives, considering and selecting a broad range of teaching and learning methods, determining the sequence and structure of the course in terms of developmental phases, and preparation of the final course document for submission to the accrediting authority. The case studies of course planning described by John Drinan and his colleagues highlights the need for planners to be flexible and to shake off preconceptions in order to develop creative solutions. It is clear also that the course planning process cannot be regarded as a linear set of lock step decisions - it is a highly interactive process involving much deliberation, and reconsideration of decisions thought to be previously resolved.

Norman Westwood describes the issues discussed in his workshop on planning for distance teaching. Starting from an assumption that postal methods of cycling information are one of the most useful ways of providing continuing education he asked participants in the workshop to identify issues which would need to be considered in planning distance teaching. Discussion focused on a model for planning distance teaching and highlighted the unique aspects of distance teaching compared with other sorts of teaching. The problems of communication exacerbated by the distance between teacher and learner require 'ferocious' attention to detail and great sensitivity on the part of the providers of distance education.

Arguably at the other end of the spectrum is experiential learning. Jim Crawley's workshop highlighted the need for group development in planning such programmes. Tony Dare and his colleagues outline the activities which occurred in their workshop on contract learning. The workshop demonstrated how contract learning involves a shift in the locus of responsibility for making planning decisions away from the teacher to students so that they become more self-directing in the learning process.

4

CURRICULUM DESIGN BY OBJECTIVES: TWO CASE STUDIES

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INTRODUCTION

There have been massive structural, social, economic and technological changes associated with commercial agriculture in this country over the past two or three decades. It could be contended that agricultural educators have tended to be observers of the processes of such changes rather than agents of change or facilitators through adjustments to the educational services to the industry.

One of the fundamental problems continues to be the lack of a profession of agriculturalists in the same sense as in medicine, law, accountancy etc. with subsequent lack of what might be loosely termed a job profile. Graduates from any of the fifty institutions or so in this country which offer post-secondary programmes in agriculture find employment in a wide range of careers associated with agriculture in research, consultation, property management, agri-business and education. In most instances the students have graduated from educational programmes which are typified by having a narrow perspective of agriculture as a whole with no recognition of the farm as a central focus of study for human activity systems.

In this scenario a strong case for a general professional agriculturalist can be made and this would form the basis for a competency model for the development of appropriate curricula and learning environments.

Some three years or so ago the School of Agriculture at Hawkesbury Agricultural College decided to reappraise its role and activities as a centre of agricultural education, and attempt to attune its learning environment to the needs of the industry it services.

We initially made a simplistic though useful distinction between three essential categories of people in the rural sector for whom educational needs can be identified. Firstly, we recognised those people in agriculture who generate information through research and investigation. The second group of people are those who use that information to improve their own farming productivity or to pursue other relevant goals in their production system. Finally, one can recognise those people who act at the interface between the previous two and disseminate information, assuring its flow from generator to user and back again. In our programmes a conscious decision was made to concentrate our main efforts on the education of the latter two categories. In the first instance more specialised programmes would be developed at the Associate Diploma level whilst the interface professional could be serviced by a Degree programme essentially in agricultural systems.

CASE STUDY 1: THE DEGREE PROGRAMME

In late 1978 Hawkesbury Agricultural College set in train its review process of its three year Diploma of Applied Science within the context of the interface professional. The planning and developmental processes that subsequently have been followed have encompassed wide ranging aspects of curriculum design from philosophy and educational conceptualisation through to methodology and the setting of the characteristics of a learning environment.

The progression of events commenced with the designation by the Head of School of a Course Co-ordinator with the mandate to select whichever group of people he wished to work with him throughout the review process. A number of such groups were formed and the dynamics of the review process must include reference to the developmental cycles of such groups.

The COURSE PLANNING GROUP, which was the first group to be formed realised that the task was less of evaluating the existing course and making subsequent adjustments to it than effectively starting from scratch with no reconceptual constraints to the eventual outcome. This realisation arose from the growing appreciation of the gap between the anticipated and changing needs for education in the agricultural sector and the plethora of course programmes which existed across the country.

This Case Study refers to the processes and consequences of the development of the curriculum for a 3½ year Bachelor of Applied Science Degree programme.

The Role and Educational Requirements for the Graduate

The Course Planning Group worked from the premise that the programme aimed to educate those who would be active in a wide range of support systems used by farmers. It was considered convenient to regard such graduates as operating at the interface between farmers and the institutions and organisations with which they deal in the management and operation of their businesses.

Five broad requirements were identified as essential for such a professional person:

- being an effective communicator
- having a broad perspective of agriculture
- understanding the concepts and dynamics of farms as production systems.
- having basic competencies in the analysis of the productivity of such systems.
- having basic skills in the management and operation of such systems.

The next step taken was to expand these essential characteristics into a more detailed statement of the attributes of the graduate. These attributes were expressed as a series of more specific objectives across the three domains of learning endeavours.

Knowledge

Graduates will demonstrate acceptable knowledge and understanding of:

i. agricultural technology
ii. the scientific basis of agricultural technology
iii. the economic basis of farm management
iv. techniques of monitoring and appraising farm performance
v. techniques of planning for optimal farm performance
vi. the farm as a commercial man-managed system
vii. the farm as a sub-system of wider environmental and socio-economic systems
viii. the interaction of technological, social, political and economic factors to influence farm productivity
ix. the principles and methods of systems analysis
x. agriculture as a disturbance to natural environments
xi. techniques of ameliorating agricultural disturbance of natural environments
xii. decision-making under risk and uncertainty
xiii. problem-solving methods
xiv. the importance of individual goals and attitudes
xv. communication and group process
xvi. the need to know how to learn and to see learning as a continuous process.

Skills

Graduates will demonstrate how to:

i. perform many of the practices of agricultural technology
ii. perform a wide range of chemical, physical, biological and other laboratory techniques pertaining to agricultural technology
iii. define, analyse and determine solutions to problems
iv. apply their knowledge in problem solving
v. evaluate and recommend appropriate innovations for adoption by farmers and be able to initiate new developments
vi. operate and manage an efficient farm
vii. effectively communicate with others
viii. find, extract, interpret and utilise information
ix. learn in a self-directed fashion.

Attitudes

Graduates will demonstrate:

i. awareness of the importance of informed attitudes about technological and social systems
ii. awareness of self in terms of the spectrum of attributes and the potential for development
iii. sensitivity to the attributes and needs of others
iv. an independence for learning yet be sensitive co-operators in group activities
v. sensitivity to changing circumstances and the need for adjustments
vi. empathy, objective inquisitiveness and rationality

It is most unusual to find agricultural curricula couched in terms of objectives. Similarly, it is rare to find statements which refer to developments in the affective domains. Typically programme prescriptions restrict themselves to emphasis on knowledge and skills with attitudinal references being confined to rhetorical statements such as "good citizenship".

Educational Methods

The second phase of development of the curriculum was concerned with the determination of how best the objectives previously set were to be fulfilled. It is perhaps important to emphasise that up to this time, the School of Agriculture had been characterised by fairly traditional teaching methods as lecture series, tutorials and field and laboratory practicals. Resistance to innovation varied from passive to quite active discouragement. Audio-visual techniques as developed by a few academics were certainly entertained although not widely adopted whilst the self-directed learning philosophy adopted in the neighbouring School of Management and Human Development aroused general and strong hostility.

By the time the second stage of course planning began however, some six to eight months since the project was initiated, the atmosphere in the School of Agriculture had become much more conducive to change and experimentation. Discussion and debate of alternative philosophies in educational methodologies had been actively encouraged and had influenced the perspective of the members of the planning group as well as a significant proportion of the academic population of the School. It is certainly true to say that there was an underlying openness to change and a very significant commitment to improving the learning environment in the School. An important constraining element in the situation was the reaction of some academics who felt they were being pressurised to be innovative because "it was the in-thing and thus expected".

In this atmosphere of change certain ideas emerged as being key in setting appropriate philosophies and learning strategies:

Independent or Self-directed Learning

Agriculture is constantly changing. Therefore, graduates must be prepared for and to change: they must be capable of independent or self-directed learning. Insights gained from Knowles

(1975) were valuable here, as was the experience of members of the School of Management and Human Development on the College. However, debate was active between the "paddle-poolers" and the "deep enders", i.e. the gradualists and the radicals, as to whether self-direction was a goal to be developed through the course, or whether it was to be an immediate goal. The gradualists finally won the day with a plan which allowed progressive increases in the amount of self-directed learning and proportionate decreases in College-directed learning.

Group Learning

Graduates will be employed to assist farmers to adjust to a changing agriculture, so they must be effective communicators. Our experience of communication courses as part of a formal curriculum had not been encouraging, and better alternatives were sought. We concluded that group learning should be an effective means of opening people to others, and of becoming more aware of their own abilities and limitations: surely basic requirements of good communication. Group learning obviously had other advantages, particularly when studying systems as opposed to disciplines.

The Theme Perspective

Most course programmes in Agriculture suffer from the lack of a clear theme or perspective into which learners can integrate their new-found knowledge, and from which they are stimulated to learn pro-actively. It was felt most important by the programme planners that the curriculum would be designed in such a way that the perspective was made clearly apparent to the learner as early as possible in the learning process and presented in such manners that it was clearly reinforced as learning progressed.

Facilitation

A course which involved self-directed and group learning was obviously going to alter the roles of staff: the old resource role would remain, but another helping role was going to be needed. Consequently, we agreed to the institution of a number of facilitators in the course: the role of these staff would be to help students to learn. They would concentrate on helping learners to define and achieve their learning goals and, while in groups, to function efficiently in accordance with course objectives.

Systems Approach

Agriculture is, perhaps, the most complex of professions, and agriculturalists spend most of their time working on problems, or, in a more precise sense, analysing particular situations and developing suitable courses of action. Graduates, therefore, need to develop a perspective on agriculture which allows them to cope with its complexity and which allows them to optimise solutions to problems. Our view is that the system approach has emerged as the one which is most appropriate to this need.

Case Studies; Experiential Learning

In order to meet the requirements of a systems approach and the ability to solve problems, it was decided that case study method was appropriate. We thus elected to abandon the discipline orientation of the past and other courses, i.e. "the specific to the general", and instead focus initially on real situations in agriculture, i.e. "the general to the specific". Students would be challenged by observations or experiences to enquire further so that they may understand that observation or experience. This debate thus raised yet another element in our methodology, i.e. that our students should, as far as possible, learn by experience. The case study method was seen as being consistent with this requirement.

Work Experience

Our students are to be trained for real, commercial agriculture. Thus , it is important that the case studies used are drawn from commercial agriculture. Secondly, the advantages of students spending a semester of the course living and working with a farming family were very considerable.

Strands

The Course Planning Group saw the core or case study area of the course as possessing three main strands, which represented the key areas with which agriculture was involved. Agriculture was seen as being about the technology of production (Production Systems Strand), people and institutions (Social Systems Strand) and ecosystems (Ecosystems Strand), all of which interrelate.

Learning Units

The various elements so far accepted introduced another requirement. Case studies and, at least initially, self-directed learning, require the support of information which is readily obtainable. Consequently, we decided that it would be necessary to develop Learning Units which are, essentially, packages or experiences and information which will enable learners to better understand the case they are studying.

Technical Skills

The body of technical skills used in agriculture is very wide, and varies according to the area(s) of agriculture in which the person is involved. Moreover, many required skills are constantly and rapidly changing with advances in technology. Consequently, learners will need to develop basic agricultural technical skills, and then to develop others that will allow them to operate in the areas of their interest.

Formative and Summative Assessment; No Grades

Two chief decisions were taken in relation to assessment. In the first place, assessment was seen equally as a learning experience and as a means of determining progression. Consequently, formative and summative assessments would be used. Secondly, the general tone of the body of methods so far developed was one of co-operation rather than competition: learners would need to co-operate with each other and with staff in order to achieve their objectives. Thus, graded assessments were considered to be inappropriate.

COURSE STRUCTURE

The next challenge involved the incorporation of earlier ideas and principles into a sequenced course structure. It had been decided that the course would be of 3½ years' duration including one semester spent on a commercial farm away from the College. It was also decided that the final semester would allow students to design their own learning experiences to permit them to achieve entry into the vocational area of their choice. It was considered appropriate to divide the total programme into five developmental phases based on particular areas of endeavour.

Phase 1 - Semesters 1 and 2
The key emphases of this phase are discovery of the systems nature of the farm, agriculture and natural ecosystems, and the characteristics of their component parts.

Phase 2 - Semester 3
This phase concentrates on introducing students to the manipulation of the farm system by management.

Phase 3 - Semester 4
This phase is spent on commercial farms away from the College. This allows students to utilise their experiences of Phases 1 and 2 in understanding and participating in the management and operation of the commercial farm. They use the opportunity to study the evolution of agriculture in the region and the place of the farm in the regional socio-economic structure. An assessment of the impact of agriculture on the original environment is also expected during this phase.

Phase 4 - Semesters 5 and 6
The student's experiences of commercial agriculture and of systems studies progress in this phase to the analysis of productivity of farms, the solution of problems and the development of new ideas and approaches to technology and management. They consider the nature of change in agriculture and the process of adjustment to change, and are encouraged to develop a sense of responsibility toward ameliorating the adverse effects of agriculture on the environment.

Phase 5 - Semester 7
The purpose of this phase is to allow students the opportunity to further develop their skills of self-directed learning and to gain specialised knowledge and experience in an area or areas of agriculture of particular relevance to them.

Persisting through the developmental stage concerned with the structure of the course programme was the concept that the broad perspective of agriculture which we had chosen envisaged agriculture as the interaction of three essential systems - natural ecosystems, social systems and agricultural production systems. Themes, detailed objectives and educational strategies including assessments were developed for each of these strands by sub-groups within the Course Planning Group. As will be discussed later this approach was eventually abandoned, and in fact the concept of Strands was a counterforce at a significant stage in the programme development.

To accommodate the increased number of people involved in the planning stage through the development of the Strands the Course Planning Group had become superseded by a Course Management Group which was an organisational development pioneered by the Associate Diploma programme which will be referred to in the second Case Study.

All of these efforts culminated in the preparation of a draft document as a preliminary to the publication of a Stage III document as required by the Higher Education Board for accreditation consideration.

This draft document which referred in considerable detail to the course philosophies and proposed strategies was widely circulated, not only within the School and College, but in a much broader arena associated with agriculture and education and not only nationally, but internationally.

The final Stage III document was printed and submitted to the Higher Education Board some 15 months after the project was first introduced.

THE PHASE I PROGRAMME

It is important to emphasise that the Stage III document contained very little detail of the day-by-day programme content, confining itself merely to broad strategies by phase. To cope with the next stage in planning, the detailed curriculum design, a new group, the Course Co-ordination Group was formed superseding the previous organisation. This group comprised the Co-ordinator and seven academics who volunteered to function as facilitators for the first year of the programme's operation and who accepted as their first task the development of the details of the learning strategies of Phase 1. The members of this new group which had a small core of individuals, including the Co-ordinator, who had been with the project from the outset were encouraged to be as free as possible in their interpretations of the curricula details within the guidelines set down in the Stage III document.

It was at this stage that the strand concept which had previously been predominant, now became a very significant counterforce. Very considerable difficulty were now experienced in attempting to translate concepts into actions, in integrating material from the three strands and in clearly identifying what was really meant by a "systems orientation".

The log-jam was freed when the three strand model was jettisoned. This model had constrained curriculum details as well as conceptual thoughts and had even dictated the organisation of the group and sub-groups.

Some intensive workshops with all members of the full group operating together then followed at an isolated site and with considerable time commitment.

The conceptual breakthrough occurred as a result of these discussions.

Rather than perceiving agriculture as three interacting systems it emerged and was unanimously adopted that agriculture was a production system which was created through the activities of man and his social systems affecting natural systems in attempting to harvest utilisable biological products.

The emergence of this concept of agriculture as a valid theme for the programme was followed by a rapid development of programme detail. The theme was then presented as a series of Case Studies or learning tasks in such a way that the interplay of social systems on natural systems to create production systems would be emphasised and constantly reinforced. This was essentially achieved by making the perspective the central focus of the planning of each of the sequential learning experiences. In other words, the programme does not consist of subjects or disciplines, it consists of studying the form, function and performance of production systems as they result from and are influenced by the interaction of social systems with natural systems. The material is presented in the way of problems or task units which pose an essential question around the central perspective. To obtain solutions to the problems the learner is encouraged, motivated and supported by resources to gather knowledge and skills, and explore attitudes. The whole process of learning will then become dynamic and relevant. Divergence from the theme into specific areas of knowledge is followed by convergence of that knowledge back into the theme which is then perforce augmented. This augmenting process of learning relating concept to detailed cognition as a dynamic and interchanging process has been aptly described by Bruner (1975) as a "spiralling" of learning.

An inordinate amount of time has been spent in deciding upon and elaborating the task unit or case studies of the essential perspective core. Each task unit was first stated as a theme or a root definition which was stated in a way which sought to establish a certain set of principles or concepts pertaining to production, natural or social systems, or frequently their interaction. An important aspect of this planning was that the theme was arrived at by group consensus, often after many hours of debate. Once the theme of a particular task unit was established, the remaining parts tended to flow quite freely. A set of detailed objectives were then developed by the team with some suggestions about how it might be conducted as a learning experience in terms of content, information and other resources that would be needed, time allocation, assessment and evaluation. These suggestions were then taken by one of the Course Co-ordination Group (one of the facilitators) who co-ordinated a sub-group of appropriate resource people to develop all the details of that learning experience.

The main learning strategy of Case Studies around either the systems nature of agriculture in general, or the analysis of a particular farm system is complemented by other components in the programme which include

- Opportunities for the student to acquire and develop manipulative skills appropriate to agricultural practices and laboratory techniques.

- Opportunities for learners to set their own learning objectives, consistent with their overall goals, and with guidance devise strategies to be used in achieving them including realistic statements about resource usage and assessment procedures.

- An "Ag-fest" week during which learners are exposed in workshop situations to a wide variety of experiences designed to further broaden the perspective of agricultural systems.

- Regular meetings of students in their designated groups with their facilitators to become increasingly sensitised to social systems in microcosm, viz. the dynamics of the learning groups themselves and how they relate to the dynamics of larger social systems.

It should be emphasised that much of the learning is done in co-operative groups, mostly in the absence of a facilitating staff member.

SOME PROBLEMS

Whilst the course has been progressing to, if not beyond expectations of the co-ordinating group, certainly some problems have emerged.

The small group learning method imposes considerable strain on physical accommodation, especially in a campus designed around traditional lecturing and practical laboratory classes.

Staff members are most sensitive to the need to learn much more about the process of facilitation, about group dynamics and about individual counselling of learners to help them to achieve their learning needs.

Many learners, particularly those who have entered the programme directly from school, have sought greater degrees of staff direction and course structure.

Resource provision takes on two particular dimensions: in the first instance the information has to be packaged and made available in ways quite dissimilar from traditional lecture series and the demands of formative assessment can be excessive.

On the positive side there is certainly strong evidence to suggest that:

Learners are far more open, co-operative, friendly, relaxed, and overtly critical than in the traditional Diploma programme.

Strong inter-dependent bonds are forming within the learning groups of 8 - 10 members.

Learners are certainly learning how to learn and to use available resources in problem solving.

The perspective presented by the systems approach to agricultural production does indeed appear to be having the desired effect of providing an integrative vehicle and of generating pro-active learning.

Perhaps above all the learners are remaining motivated to seek information, learn skills and expose themselves to fresh attitudes in an exciting learning environment.

Much has been experienced and learnt in this degree designing project and much certainly lies around the corner to be experienced and learnt.

CASE STUDY II: THE ASSOCIATE DIPLOMA PROGRAMME

INTRODUCTION

This programme in Animal Production involving two years of full-time study was introduced in 1979 prior to the Degree programme. The general aim of the programme is to provide an education for those who wish to fulfil the role of Manager in Animal Production enterprises, and of course is particularly suited to the children of current producers who wish to return to their family properties.

In providing this type of programme the College was responding to a variety of needs for education for those recognised as "users of information" in the agricultural sector. There is significant empirical evidence to suggest that considerable benefits can accrue to farmers experiencing post-secondary studies (Straus, 1959; Craven, 1971; Nalson, 1973; Hawkins, 1974). Ironically although institutions such as Hawkesbury Agricultural College have been operating in this country for many decades, the percentage of farmers who have graduated from tertiary institutions is remarkably small with a figure of only 4% being often quoted.

The challenge was to design a curriculum which would attract students who had a high expectation of entering the industry as producers and managers, and providing a sound basis for their future learning needs.

Of particular importance was the need to design a curriculum which would provide opportunities for the learner to integrate practice with theory, solve management and production problems relating to animal production systems, develop as a learner within the broader context of becoming a more fully developed person.

THE PROCESS OF COURSE PLANNING

As with the previous Case Study the project again commenced with the appointment, by the Head of the School, of a Course Co-ordinator with a mandate to select his own course team. A significant point regarding the operation of this team was that no account was taken of formal rank or status in the College in its working. The "senior man" was in fact not the co-ordinator of the group and the egalitarian outlook which prevailed was fundamental to embrace the overall philosophy of the programme which emerged. An enormous sense of urgency pervaded the design stage with but a few months to complete the design of the task, the submission of the Stage III document, its accreditation and subsequent entry into the course of the first intake of students.

A rather unusual occurrence was that a Stage III document had previously been submitted and accepted by the Higher Education Board and which was subsequently fundamentally amended following deliberations of the new course development team.

The process of design followed with the identification of graduate competencies and their translation into programme objectives. This stage was followed by the selection of an appropriate educational philosophy, and finally, by the design and development of a detailed curriculum and programme organisation.

GRADUATE COMPETENCIES

Obviously the range of attributes of practicing farmers if considered in finite details would be legion. As a starting point, and as a result of considerable debate within the team, a set of seven overall and rather global competencies was drawn up and tested in as broad a forum as possible. A most unusual feature of these competencies was that only three of them expressed major concern with the cognitive and psycho-motor domains; the remaining four being essentially within the affective domain.

The seven attributes which have been identified are:

i. Ability in problem solving by being able to monitor and record all relevant data in an animal production enterprise, and to analyse, evaluate, make recommendations and act upon these recommendations.

ii. An adequate level of knowledge to be able to perform competently in problem-solving situations in a variety of animal production enterprises.

iii. Ability to work with others in co-operative groups, to be able to supervise others effectively and to accept supervision constructively.

iv. Ability to adapt effectively to change in time, technology, enterprise, industry and social conditions.

v. Ability and willingness to seek information and to accept responsibility for their own continued learning and development.

vi. An awareness of, and sensitivity to, the attitudes and problems of other people and groups.

vii. A satisfactory degree of skill in working with animals and performing the main operations associated with an animal enterprise.

Educational Philosophy

The key features discussed during the formation of a philosophy appropraite to this programme can be summarised as follows:

- The central theme of the programme should be provided as an experience base exemplifying skills training and learning within a context of commercial realism in both management and operational areas.
- The learning experiences should be essentially self-directed with the learner taking the responsibility for identifying and achieving their individual needs. In this context emphasis would be based on the necessity to develop learning skills appropriate for the lifelong nature of learning and thus experience and skills in goal definition and appropriate learning strategies would be essential.
- To cater for the development of effective communication, interpersonal relationship skills and co-operation in learning would be provided in facilitated groups.
- The course process would evolve essentially around a problem orientation so the analysis and solving of real world case studies emphasising the process and much of the content is a key factor in developing the skills of effective group decision making.
- That whilst both formative and summative types of assessment would be used through the programme, particular emphasis would be placed on incorporating assessment into the learning process. Responsibility would be placed on the learner to produce evidence of learning rather than on the staff to test.

STRUCTURE AND ORGANISATION

To encompass the unique features of this programme into an effective programme organisation led to a high degree of innovation. It is important to emphasise that to the knowledge of those designing the programme the course was without precedent, at least in the field of animal production, and so experiences of others could not be drawn upon.

Whilst this freedom to operate in a self-selected style generated a high level of energy and satisfaction amongst the members of the planning team, considerable anxiety and frustration arose later during the implementation phase, particularly in regard to constraints imposed by the availability of resources.

The eventual curriculum reflects a sequence over three major developmental phases, each with a set of distinct although inter-related overall objectives. In essence, the first phase evolves around the experience base of a "real world" commercial farm. This is followed by an on-College phase based on the management and operation in groups of small farm enterprises (mini farms). The final phase permits emphasis on the individual learner achieving his/her personal vocational goals using a variety of experience bases.

The phases and their objectives.

Phase 1 - Semester 1
Three general objectives are aimed for during this period:

i. Orienting students to the programme and its educational strategies and methods.

ii. Exposing students to real world experiences in commercial animal production systems.

iii. Developing a knowledge, skills and attitudes base from which to develop a learning programme, as well as a sensitivity to learning.

There are three major learning strategies in this phase.

i. An introductory workshop on campus for a three week period in which there is an emphasis on an awareness of group dynamics, an introduction to pro-active learning skills and the acquisition of basic competencies in a range of practical skills pertinent to animal production systems.

ii. An extended (20 week) experience working on one of a network of private commercial farms developed by the College with co-operating producers.

iii. Complementary external studies programme whilst on the farm placement and emphasising observational skills, introducing new concepts and terminology and extending their basic knowledge of aspects pertinent to the operation and management of animal production enterprises.

Phase 2 - Semesters 2 and 3

The emphasis on this phase is on co-operative group learning activities in problem-solving contexts. Four major objectives are aimed at in this phase.

i. Developing a personal goals statement and a detailed learning programme based on achieving such goals, accompanied by the learning skills necessary to implement the learning programme.

ii. Developing further basic knowledge and skills to a level of competency appropriate to the needs and aspiration of each individual learner.

iii. Developing relationship skills and abilities to work effectively in co-operative teams.

iv. Developing attitudes and skills pertinent to complex problem solving in both group and individual situations.

Four major learning strategies are adopted in this phase, with the major activities focusing around small on-College farms (mini-farms) which act as the experiential bases for the programme. In this context the learners have the major responsibility for operating and managing these enterprises with a total financial responsibility or a budget approximating $90,000.

The learning strategies of this phase:

i. The operation and management of small commercial animal production systems on the College estate (a grazing farm of beef and sheep; an intensive piggery; a poultry layer and broiler enterprise).

ii. Problem solving activities using "real world" derived case studies and based on co-operative experiences in facilitated groups.

iii. Self-directed contract study learning as individuals.

iv. Workshop activities organised around learning areas of common interest and organised in response to identified needs of the learner or to exploit seasonal or other opportunities as they arise.

Phase 3 - Semester 4

During this phase the emphasis shifts from group activities to individual learning. Under these circumstances the learners are encouraged to develop strong vocational orientation in their programmes, related to their job expectations. The objectives aimed for during this phase are:-

i. Developing specialised knowledge and skills through individual study.

ii. Further developing skills of learning, particularly in the context of self direction.

iii. Providing opportunities for learners to demonstrate overall achievement.

Whilst there are two major directed strategies during this phase, the learners may involve themselves in a wide variety of learning activities. The two major strategies are:

i. Individual self-directed contract study learning emphasising specialist knowledge and skills to varying depths.

ii. A major individual systems type of oriented case study of a selected commercial animal production farm.

The overall assessment of the learner in this programme is based on a Portfolio of achievement over three main areas-skills relevant to both learning about as well as operating and managing animal production systems; an extensive knowledge base pertinent to same; and significant personal development.

Under such circumstances it is clearly inappropriate to award grades and in all formative and summative assessments the results are merely stated as Satisfactory or Unsatisfactory. One of the major aims in this form of assessment is to reduce competition between individuals and thus remove a significant constraint to successful co-operative group learning activities.

PROBLEMS ENCOUNTERED IN THE IMPLEMENTATION

The one constant feature of innovative educational systems is the ever-presence of unpredicted situations and problems. Many, of course, are of a minor organisational nature, but failure to respond appropriately can create a more serious situation threatening the trust between the student and his facilitator. Three general problem areas are worthy of particular note.

i. Facilitation, including Counselling

There is no doubt that the change of role from pedagogic teacher to "helper of learning" can create considerable anxiety in academic staff. An attitudinal change is obviously essential, and must be associated with the acquisition of skills in both group facilitation and individual counselling.

These perceived inadequacies are compounded by the anxiety of students provoked by unfamiliar learning strategies. There has been frequent unwillingness on their behalf to accept responsibility for their own learning and frequent discomfort with the group process, co-operative learning and active involvement in course government. The final problem in this category has been a preoccupation with task and content rather than with process in the earlier stages of the programme, resulting from anxiety of both staff and students concerning the programme of learning and this is proving costly at later stages of the programme when readjustment is difficult.

ii. Assessment

It has become very apparent that it is frequently very difficult to balance the disparate aims of formative and summative assessment without undermining the aims and benefits of both. It is of fundamental importance to develop an assessment system that provides adequately for the educational needs of the learners and is a positive motivating force, whilst at the same time being adequate to the needs of the institution in administering and accrediting the programme.

iii. Change, Adjustment and Evaluation

An innovative programme such as this can only be conducted in an environment which accepts and can adjust to dynamic situations. Change is a constant feature and yet such changes must be capable of evaluation if accurate monitoring and relevant reactions are to be assured. Institutional constraints, both attitudinal and organisational, can obviously have very severe effects on the management and further development of programmes such as this one. Here again a further hazard is that so much effort and energy can be expended in over-riding the constraints that this becomes an end unto itself and the learning environment consequently suffers.

The course programme team has been very conscious of the need to maintain an on-going evaluation of their strategies and activities and of the need to accurately portray that which they are doing to other sectors of the School and of the College. In the end, of course, there are no better ambassadors or agents of change than the learners themselves, and it is by their behaviours that we shall, perforce, be eventually judged.

CONCLUSIONS

It would be a gross misrepresentation to pretend that initially we recognised a set of attributes and educational principles that we wished to follow, as well as optimal administrative and management functions, and then designed a critical flow sequence of events which we have faithfully followed subsequently. As it has transpired, a logical sequence can be recognised in retrospect, and we can now present it as a possible model for those in equivalent areas of educational endeavour.

We certainly started with the premise that curricula should be based essentially on a combination of the employers' needs and those of the learners, as well as on the aspirations and the talents of the academics. A number of important concepts and dimensions were also embraced at the start. These included general acceptance of experiential learning processes, facilitated learning, co-operative group learning, objective-based learning and the desire to encourage learners to accept increasing responsibility for their own learning as course programmes developed. Other aspects of curriculum design and development that we felt we needed to incorporate included systems approaches and perspectives, commercial reality and social responsibility as major themes. The concepts of spiralling curricula in the Bruner mode held considerable attraction, as did both problem solving and case study analysis learning modes. There was also an early emphasis on the provision of opportunities for learners to be encouraged and supported to extend their learning beyond the vocational to permit total self-development.

Recognition of the three categories of people in the rural sector and acceptance of our decision of the areas in which we would operate led us to generate lists of basic attributes or competency models based on appropriate knowledge, skills and attitudes for each area.

Our developmental plans could obviously not cease at curriculum design and conduct, but had to extend into both assessment and evaluation. As innovative, educational strategies were adopted, so appropriate assessment procedures, both formative and summative, have had to be designed and conducted. All such changes as have been mentioned would have been irresponsible unless conscious efforts were made to evaluate the benefits and then appropriate adjustments made where indicated. It is perhaps in this latter area of endeavour that we have been most ill-equipped to move. Recent initiatives, however, have been taken and evaluative procedures are being carried out.

It is important to emphasise that throughout all of these developments we have attempted to remove conventional barriers to development by maintaining open thoughts on educational strategies as well as academic organisation, management information systems, the role of the academic, assessment and many other traditional constraining features.

Throughout this developmental process we have preferred to think of it as the Hawkesbury Experience, rather than the Hawkesbury Experiment. We have been honest with those learners who have entered our programme in disclosing our own perceptions, attitudes and opinions on the entire process. We are making conscious efforts to share learning with our students rather than to teach them. Above all, we are recognising them as individuals with individual goals and needs and we have assumed it to be our responsibility to help the learners to not only identify their goals, but to achieve them through the provision of an encouraging and supportive learning environment.

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PLANNING FOR DISTANCE TEACHING

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LEICHESTER POLYTECHNIC

The aim of this session was to air views about planning for distance teaching. The specific objective was to focus these views on the provision of distance teaching and derive a generally applicable model. In reporting what took place during the workshop session I have tried not only to embody the views and comments of all those present but also to get across the flavour of the dialogue which took place.

A flow chart was presented which outlined an existing procedure used for providing written material for pharmacists. Intended as a catalyst for the exchange of views, it pictured information and ideas being fed to a student body. Student response could then be monitored, assessment made of returned material and feed back actioned to complete the cycle. This crude procedural model was intended to raise questions which would in turn aid evolution of the general model mentioned. A certain productive tension arose in the ensuing debate for a number of reasons. The diversity of interests among participants and of their expectation of the session led at first to prolonged discussion of apparently isolated points which were nonetheless incorporated later into an overall picture. There was also a problem of word usage. It could not be assumed that the group has a common language! The latter barrier was soon overcome and it is possible to itemise the points which emerged. The group was also interested in the personal experiences of the session leader, experiences which had been left out earlier so as to evoke fresh unbiased responses from the rest of the group. Taken together these discussion areas formed the basis of the plan which was derived.

Before embarking on a distance teaching exercise it was seen as essential to locate a body of people with definable needs and characteristics. Normally, surveys would be needed to tighten up the loose intuitive perception of needs essential for the initiation of such a project. However, more mundane things such as budgeting considerations might make anecdotal evidence of need enough to vindicate taking immediate exploratory steps. The type of data or information required by the student would also have to be characterised before a relevant curriculum could be arrived at.

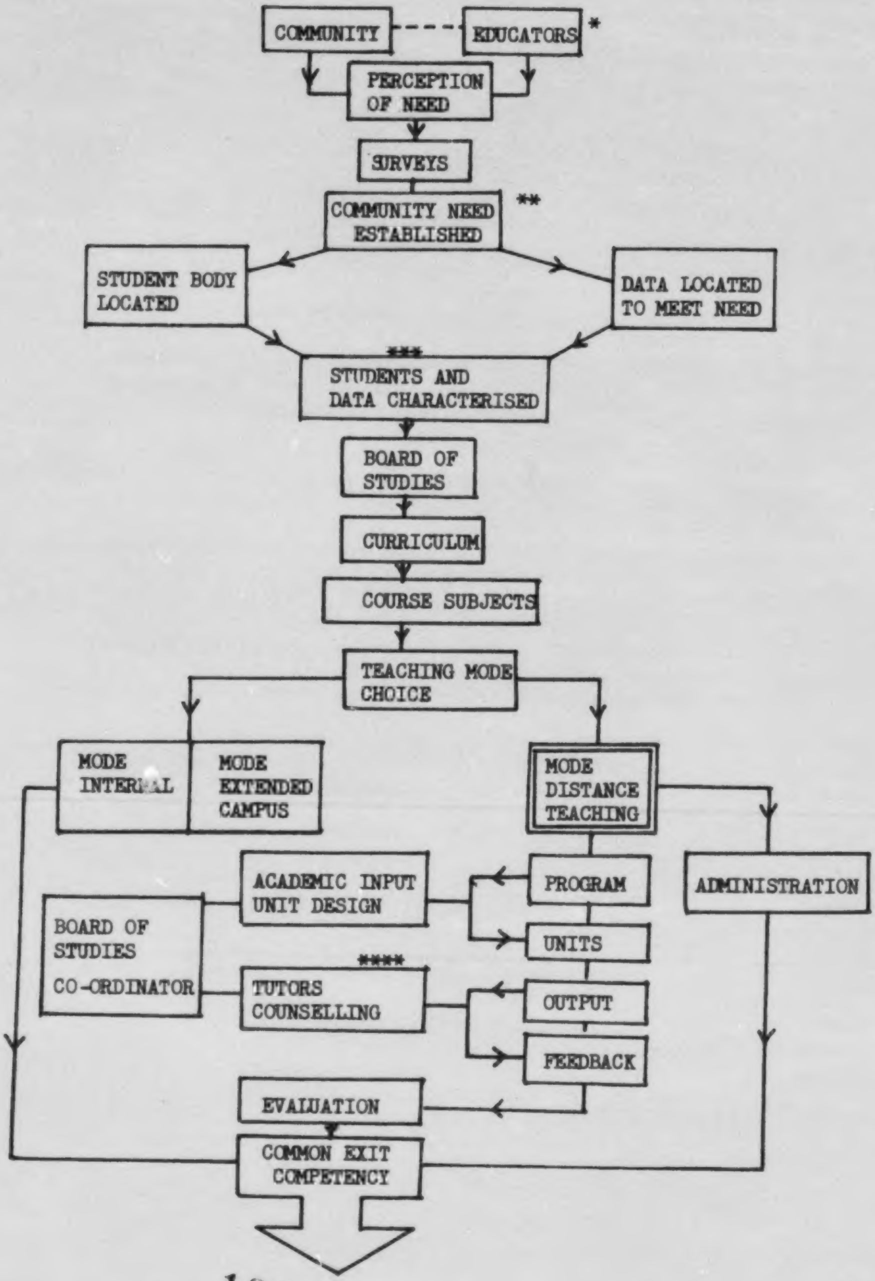
At all stages support would be useful, for example in survey then curriculum design. It was noted that the presence of a need did not necessarily mean that the potential student body would wish to meet it. This characteristic would then raise a moral dilemma of sorts. Should steps be taken to convince them they were "wrong", or were they indeed wrong in the first place? It was decided that resolution of this sort of problem would always rest with the specific circumstances and no more could be done than to recognise the possibility of the situation arising.

By this time it was possible to draw out a model in which distance teaching was a component mode of instruction, dependant on participant characteristics (figure 1). It seemed very similar to any model of an educational procedure providing information and leading to a student with a set of competencies and raised the important question of what made distance teaching different from any other sort of teaching. To answer the question fully would require an extensive analysis, even supposing it were fully answerable. However, one approach would be to bring the distance teaching mode as close as possible to the campus type. To exemplify, the written word coming through the post has no gestures or facial expressions to help it communicate. Therefore, it must be produced with an almost ferocious attention to detail if it is to succeed. The same applied to all aspects of the course organisation where distance intensified problems normally existing in education. Again, examples help clarify the ideas discussed. Whereas on campus a student could be asked informally about progress at some opportune moment, with distance teaching, the administrative set up would need to be sensitive and geared to such contact by other than the face to face method. A (relatively expensive) telegram might be more appropriate than a letter if an urgent request was being made. On campus such things as course work marks could be checked accurately if casually by asking to see a student's work. At a distance this would be impossible and accurate records would become essential.

There was no time to discuss counselling and tutor work at any length. However, with special respect to distance teaching at first degree level the Open University experience can be invoked (1,2). This is a complex area going to the roots of what makes for good teaching, good learning, good education and once again the problems are exacerbated by distance. However, modern technology is shrinking distance and we were reminded of the numerous sophisticated aids available in education which could be used to help good communication.

Summing up, I would say that the most difficult and important question raised at this session was on the difference between distance and any other sort of teaching. In organisational terms there was very little difference apart from the mechanical business of posting material. My own view is that since the problems of teaching are intensified by distance, it follows that in planning for distance teaching, one should begin by addressing oneself to the problems in detail and with an appropriate intensity.

Figure 1. Steps in planning for distance teaching.


COMMUNITY
EDUCATORS
*
PERCEPTION OF NEED
SURVEYS
COMMUNITY NEED ESTABLISHED
**
STUDENT BODY LOCATED
DATA LOCATED TO MEET NEED
***
STUDENTS AND DATA CHARACTERISED
BOARD OF STUDIES
CURRICULUM
COURSE SUBJECTS
TEACHING MODE CHOICE
MODE INTERNAL
MODE EXTENDED CAMPUS
MODE DISTANCE TEACHING
ACADEMIC INPUT UNIT DESIGN
PROGRAM
ADMINISTRATION
BOARD OF STUDIES CO-ORDINATOR
UNITS
****
TUTORS COUNSELLING
OUTPUT
FEEDBACK
EVALUATION
COMMON EXIT COMPETENCY

* Assumes an institution-community interaction leading to awareness. Assumes the institution has a remit to explore.

** The desire to fill the need may not be felt by the community!

*** Physchological e.g. prefers postal courses.
Physical e.g. disabled.
Ethnic e.g. cross cultural problems.
Cultural e.g. family constraints.
Family constraints per se.
Geographical and time constraints.

**** Point of real contact between student and institution. Rapport between tutors and administration is essential.

1. Teaching at a distance, Number 1, Nov. 1974, The Open University, Milton Keynes, U.K.
2. Teaching at a distance, Number 3, May 1975, ibid.

GROUP DEVELOPMENT AND THE PLANNING OF EXPERIMENTAL LEARNING PROGRAMMES

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The significance of experiential learning as a resource in training and education for the human service professions will be briefly outlined. It will then be argued that a key 'organizing concept' for the design of such programmes is the concept of group development. Principles for curriculum design which can be derived from the concept of group development will be introduced, and a number of examples will be given from different types of experiential learning programmes. It will be argued that paying attention to group development in the design of experiential learning programmes is a significant factor leading to a greater level of gain by the participants.

CONTRACT LEARNING

TONY DARE, MIKE FARIS, BARBARA CARGILL,
ROYAL MELBOURNE INSTITUTE OF TECHNOLOGY

This summary outlines what our objectives were for this workshop, what we did in the session, the feedback we gained from participants and what we gained from the experience.

1. Our Objectives

Our aim was to offer a workshop in which HERDSA conference members could expect to

(a) develop in conjunction with the workshop leaders and other participants, a contract setting out objectives which they hoped to achieve at the HERDSA conference; the contract to include how they intended to achieve those objectives during the remainder of the conference; and

(b) acquire a greater understanding of the potential of contract learning techniques in their own teaching situation, having experienced a cycle of contracting during our workshop.

In the materials given to conference members we included a flier which abbreviated these objectives to the following:

> "Why are you here? We offer you a workshop showing you how you can
>
> (a) get the most of this HERDSA conference and
>
> (b) use learning contracts in your own teaching".

As workshop leaders we also had our own objectives for offering the workshop: one was to increase the significance of our own conference attendance by offering a definite activity, and secondly to take the opportunity to work together as workshop leaders, something which we both wanted to do.

2. What we did

Eleven conference participants attended the workshop including Dr Parnich Tinnimit who took a special part in the conference as we will describe later. The program was as follows:

1:30 Welcome to participants. Participants introduced themselves in turn with their name, position and their previous experience with contract learning. The leaders then further introduced themselves by explaining what their experience with contract learning had been and its value for tertiary teaching. We then outlined the proposed program.

1:55 Individually, in pairs and then in fours the participants shared the following:

> "What I want to get from this workshop and how I propose to get it".

This activity was intended to help participants get to know each other and also to sharpen up their objectives. We then collected the main points from the groups of four. The main messages were as follows: participants particularly wanted details on how to implement contract learning, how to avoid pitfalls and how to overcome initial resistance.

2:15 We then introduced the participants to the materials: these consisted of an inventory of possible objectives that a HERDSA conference participant might have; an example learning contract written by a hypothetical conference participant and a contract pro forma blank. Although the participants had clearly indicated they wished practical information on how to implement contract learning in teaching situations, we encouraged them to write a learning contract for their own HERDSA conference attendance. We believed that if they were prepared to "get their feet wet" by actually writing a learning contract, they would confront and work through many of the practical problems connected with learning contracts. All the participants agreed to do this.

3:00 We then discussed what they had gained from writing personal contracts. We distributed and discussed actual learning contracts from teaching situations at the Royal Melbourne Institute of Technology in the areas of Communication Engineering, Architecture and Administrative Studies.

3:15 Evaluation of the workshop: we asked the participants to fill in a questionnaire consisting of three items.

> "No. 1 What did you appreciate about this Workshop?
>
> No. 2 Suggestions for when this workshop is run again.
>
> No. 3 Any other comments".

3:25 Wind-up. We offered to further assist participants in implementing contract learning systems and gave our RMIT departments and telephone numbers. We gave them a list of books relevant to the topic (see Bibliography). We suggested that the participants lunch together on the last day of the conference to report on their progress in implementing their learning contracts. The workshop ended at 3:30.

3. Feedback we received

Many of the participants were staff of educational development units. In their responses to "What did you appreciate about this workshop?" it is clear that many of them had been closely observing our workshop leadership styles. Fortunately for us it appeared that they found the styles and the atmosphere in the workshop comfortable and facilitating. Several participants commented positively about the interaction between members of the group and the leaders: one referring to "Absence of over-confidence and dogmatism appreciated". The main suggestion given was for additional time to deal with the topic, which some participants obviously found difficult to digest adequately in the two hours.

Some, but not all of the participants in the workshop lunched together on the last day. Although there were generally positive comments made about the value of contract learning it was unclear as to whether many of the participants had actually used their learning contract in a systematic way.

However, one of the participants of the workshop clearly had used the opportunity in the way we had envisaged. Dr Parnich Tinnimit, Assistant to the Rector for Academic Affairs, Prince of Songkla University, Hat Yai, Thailand, was invited by the conference commentators to give some impressions from the point of view of an overseas visitor to the conference. In the course of his remarks he referred to the learning contract which he had devised for himself which included the objective of meeting at least four new colleagues; in fact as he pointed, he had exceeded his objective considerably, having in fact met some twenty new people!

4. What we gained

The planning for this workshop was a significant commitment even though we had both been involved in such activities before. Nevertheless, the enthusiasm and commitment of the participants during the workshop was very obvious to us and the positive feedback received forestalled any doubts we might have had about whether the effort had been worthwhile. It is clear from the responses of the participants that many of them saw learning contracts as a powerful means of developing the staff/ student relationship in the desirable direction of an adult/adult relationship.

The workshop was a pleasant experience to look back on.

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Part IV:

The Nitty Gritty

1. A review of the dimensions of teaching
   F. C. Kintzer

2. This isn't supposed to be fun, you're supposed to be learning!
   J. Lublin

3. Improving the tutorial
   H. Stanton

4. Double win problem solving
   B. Stone

5. Practising what you preach
   F. Marriott

6. Clinical practice by simulation for law and social work students
   J. Hedburg, A. Lanteri, and S. Charlesworth

7. Teaching qualitative engineering skills
   G. W. Smith

8. Concept formation in engineering mechanics
   L. Rizzo

9. Teaching your discipline to students of another
   V. Ullrich

10. Supervision of post-graduate research students
    I. Moses

INTRODUCTION TO PART IV

The 'nitty gritty' is of course those things which teachers and students actually do in the learning situation. The mainstay of the teaching and learning situation in higher education has been the lecture. Enshrined in course descriptions, timetables and buildings it probably is still, in the minds of many tertiary teachers, the sine qua non of teaching and learning in higher education. However looking through the papers contained in this section one cannot help be impressed at the range of possibilities and their underlying concern to improve the quality of teaching and learning. Refreshingly creative ideas abound in these pages and it is to be hoped that this is a reflection of a more general trend towards greater flexibility in choosing appropriate teaching and learning strategies in the light of the aims of learning and the characteristics of the learning situation. Papers in this section review various types of teaching strategies; examine the effectiveness of learning where students are involved in producing audio visual segments; suggest techniques for improving the tutorial, and problem solving skills; discuss problems associated with being consistent about what is taught and how it is taught; describe the applications of simulation and gaming to clinical teaching, and the teaching of engineering skills; report on a study of students concept formation in engineering; discuss the problems of and service teaching and supervision of post graduate research students.

Frederick Kintzer reviews teaching strategies in terms of a typology containing three dimensions:

i) methods predominantly controlled by teachers
ii) mutually selected methods
iii) methods largely controlled by students

Each type has its strengths and weaknesses however he suggests that in the United States the most exciting developments are occurring in the third category. Jackie Lublin's paper describes a particular example of this type of learning situation in which groups of students in Sales Administration co-operatively produced an audio visual segment which could be used for on-site training in the 'real world'. Her concern was to assess whether learning was encouraged by this procedure. Student feedback obtained by questionnaire, indicated that students felt they learned new ideas and skills particularly in the area of audio visual communication and they found the process interesting and stimulating in spite of having to put in more work than the assessment weighting of the subject warranted.

Harry Stanton looks at small group learning more generally with a view to suggesting ways of improving the effectiveness of learning in the tutorial. The comments and re-actions of participants in his workshop to techniques such as open problem sharing, brainstorming 'six best' statements, nominal groups, etc. indicate that such techniques can make the learning stimulating and enjoyable. Blair Stone's workshop focused on a specific approach to problem solving he calls double win problem solving. The use of this approach may improve the learning interactions between teachers and students.

Fern Marriott addresses the issue of attempting to manage the learning process in a way which is congruent with what is being taught. She describes a course in organizational development which has philosophical values stressing the importance of openness, sharing, and collaboration. She shared with workshop participants the approaches to teaching and learning adopted in the course and sought feedback from them on how improvements could be made. The main thrust of these approaches is the collaborative involvement of the 'learner' in decisions about the learning process.

Simulation is a particular learning strategy which provides opportunities for active involvement of students in the learning process. While it is true that students may have no say in the decision to use simulation as a strategy once they are participants in it there is considerable scope for individual and group decision making and conflict resolution. John Hedburg and his colleagues describe the use of a simulation package for law and social work students studying the roles and processes of the Family Court of Australia. The paper describes the development and design of the simulation and reports the results of a self-rating schedule administered on a before and after basis to two student cohorts. Overall, the paper concludes that the simulation was effective in developing students' awareness of professional role perspectives and conflict, experience of family court processes and in promoting students initiative and responsibility for their own learning. A related learning strategy-gaming - differs from simulation in that in gaming the rules and modes of action are clearly defined. Geoffrey Smith illustrates the use of games in teaching qualitative engineering skills. He explains that the advent of computer analysis has produced a need for changing approaches to teaching structural engineering so that more emphasis is placed on teaching how structures behave under load rather than on methods of analysis. Games he claims are very appropriate means of illustrating the behaviour of structures and they assist in stimulating student interest and motivation. Having participated in Geoffrey Smith's workshop (as an engineering pre-schooler) I can only agree wholeheartedly!

Luigi Rizzo is also concerned with the teaching and learning process in engineering. He describes the first stages of an investigation into the formation of concepts by engineering students which focuses on the utility of algorithms in the development of engineering concepts. His paper describes the characteristics of the learning situation in a civil engineering course which gave rise to the investigation and the methods used in the investigation to date. Whilst the preliminary results are inconclusive there would appear to be much value in conducting a similar investigation which avoided the methodological weaknesses in this study.

Vivienne Ullrich discusses problems and issues related to teaching in a service capacity to a group of students in another discipline. She draws on her experiences in teaching law to social work students and students in other disciplines in order to identify possible conflicts between what they want from you and what you think is valuable for them. Problems requiring resolution include pitching the teaching at the appropriate level, determining the framework for organization of the content of teaching, and providing an acceptable breadth of coverage of the subject matter within usually limited available time.

The last paper in the section focuses on the means by which improvements can be made in the supervision of postgraduate research students. Ingrid Moses argues that this process is a teaching function which is not done very well in many cases and that post graduate research students are treated ambivalently. She reports that in the conference workshop participants varied widely in their perceptions of the aims of higher degree studies. Suggestions for improving supervision included greater contact by supervisors to review progress, establishing contracted intermediate goals, keeping 'minutes' of meetings, and ensuring accessibility. Ingrid Moses concludes that it would be valuable to conduct courses and workshops for supervisors which laid the foundations for effective supervision of post graduate research students.

A REVIEW OF THE DIMENSIONS OF TEACHING

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There are many ways to examine the dimensions of teaching. For this session, I propose to review three dimensions of instructor/student association and then to concentrate on the third section of the instructional typology around which much excitement is currently generating. Illustrative material will be drawn from UCLA research activities.

The instructional typology is depicted on the accompanying chart. One series of cells represents instructor or institutional involvement and another, individual or student involvement. Each chart is divided into three vertical dimensions: 1) instructor-controlled, 2) instructor-student cooperative efforts, and 3) student-controlled; and two horizontal dimensions: A) procedures and activities, and B) experiences and outcomes. The two horizontal dimensions are divided into a) sponsored and b) nonsponsored procedures and activities. The cells marked 3b in both charts is where the excitement is now found--the nonsponsored procedures and activities largely determined and controlled by students.

The first dimension encompasses the traditional and still-prevailing procedures and activities largely controlled by instructors--the various forms of the lecture about which we are best acquainted both as receivers and givers:

The formal lecture
Informal lecture - which includes questions and some controlled discussion
Tutorial or coaching
Demonstration-laboratory
Audio-visual nonprogrammed materials
Teacher dominated seminar
Team-teaching

The lecture, or variations thereof, is of course a very desirable technique for certain situations when information giving is important, especially in large or diversified groups and beginning classes. Lecturing can be effective in achieving lower cognitive and attitudinal taxonomic levels, but the general passivity of students in a lecture situation is not conducive to effective learning.

The second dimension of instructor/student associated techniques requires some cooperation between instructors and students. These include forms of discussion: oral reporting, brainstorming, listening teams, buzz groups, panels, forums, colloquia, role playing, debates, directed independent study, and multimedia instruction. Student-centered or group-centered instruction which encourages greater participation and independence from teacher dominance has weaknesses; e.g., diminishing instructor feedback. Research suggests that student-centered methods are preferred by teachers who are more interested in higher or more complex levels of cognitive and affective student outcomes. In other words, choice of methods depends on the objectives of responsible instructors.[1]

The Chemistry Department at UCLA is experimenting with the use of high quality, color, videotaped laboratory modules attempting to manage large classes and the resulting differences in the quality of teaching assistants. Comparing experiment completion rates and qualitative success from Fall 1976 to Spring 1978, the use of the pre-recorded videotapes has decreased laboratory experiment completion time and improved performance. A substantial reduction in arithmetic errors has also been achieved with the use of interactive computer programs which provide automatic data feedback.[2] Decrease in student anxiety is one of the unexpected benefits, particularly in those who utilize the videotapes during pre-laboratory preparations.[3]

Those in the audience wanting more information should correspond with Arlene A. Russell, Chemistry Department, UCLA, Los Angeles, California 90024. Slides are available here for viewing following this discussion. Copies of Mrs. Russell's report are also available.

The third dimension of instructor/student associated techniques includes a variety of procedures and experiences largely controlled by students shown as 3a and b on the bottom chart. This dimension is depicted on both charts as sponsored and nonsponsored procedures and activites. The excitement is currently being experienced in the area of nonsponsored procedures and activities; i.e., the development called experiential or prior learning. The remainder of this discussion will be centered on that new direction.

But first, the work of a colleague, Professor Marilyn Kourilsky, should be described. Professor Kourilsky's "Mini-Society" pedagogy is receiving considerable attention. This competence-based educational strategy developed to improve the coping skills of children focuses on economic scarcity as a life-long problem. Discussion groups are organized to identify problems, establish a list of activities that are rewarded by an income, assign a value to labor, and decide if and when income should be withheld from the proposed labor.[4] Initial experiences in decision making and their consequences are provided through the "Mini-Society" system, and spill over benefits; e.g., experience with income and sales taxes and civil service, are also realized.

Throughout the functioning of the "Mini-Society" the teacher remains the observer. The role of "debriefer" is one of the innovative components of Professor Kourilsky's system. In her words:

> A debriefing session is not an open-ended discussion ...A talented debriefer can even go beyond what is achieved in successful inquiry-oriented discussions and can literally facilitate the integrating of new learning into the child's framework of analysis.[5]

While the "Mini-Society" pedagogical plan is designed for children, adaptations to adult education are obvious. An entire range of competencies related to adult living can be approached through the Kourilsky "Mini-Society" concept.

Competency-based instruction is becoming increasingly popular in American colleges and universities. Highly developed programs are found at Bowling Green State University (Ohio), Florida State University undergraduate colleges, Alverno College (Wisconsin), and Mars Hill College (North Carolina). A brief review of a liberal arts baccalaureate degree at Justin Morrill College, Michigan State University will illustrate the relationship of required competencies to life experiences. Each of these six competencies is followed by several performance objectives for students which they satisfy directly from experience and express orally or in writing:

1) the student knows how to acquire knowledge and how to use it,
2) has a high level of mastery of communication skills,
3) can demonstrate awareness of own values and those of others,
4) functions effectively in groups as a leader and follower and is well aware of strengths and weaknesses,
5) has knowledge of a broad range of contemporary events, can analyze them, develop and defend a position, and carry-out and evaluate an action plan, and
6) can integrate knowledge, skills, and awareness of values.[6]

These references pertain to 3a on the charts, and are sponsored procedures and experiences with respect to instructors and students. The nonsponsored procedures and experiences (3b on the charts) provide opportunities for great flexibility in equating acceptable experiences to degree requirements. In the latter, learning objectives are not preplanned. Evaluation of submitted experiences is often considered by groups of faculty or outside experts through a process known as "portfolio assessment." Portfolio assessment is an elaborate process beginning with a full seminar on how to develop a personal portfolio of experiences, and an equally elaborate system of guidelines for evaluators. The best known of these statements was recently developed by the Council on the Advancement of Experiential Learning.[7] Over 300 senior institutions belong to this independent organization, and in varying degrees subscribe to the Council's recommendations.

Awarding college credit for experiential or prior learning was developed soon after World War II. Initially referred to as life experience, credit was given at Brooklyn College (New York) and Mundelsin College (Chicago) for wartime military services, and rapidly spread to other experiences as authorized by other institutions. A statement from the Acquinas College Bulletin (Michigan) outlines the parameters of experiential education:

> Life experience credit generally is based on either past employment experience or informal educational experience which could involve such programs as extensive reading done by the student, special training seminars, workshops, etc.[8]

Evaluating nonsponsored experiences is obviously a much more difficult and complex task than evaluating sponsored experiences. Academic recognition for nonprofessional life accomplishments, work and community service and self-directed learning projects is difficult to justify. Faculties struggling with such requests where the awarding of such requests has general institutional approval must first decide what is college-level learning. Two publications of the American Council on Education are widely used in this determination: The National Guide to Credit Recommendations for Noncollegiate Courses, and The Guide to the Evaluation of Educational Experience in the Armed Services. Both provide direction for developing valid and reliable evaluation of student achievement which is the *sine qua non* in awarding credit of any type.

Three types of experiential learning have been identified. The first, the "how-to-do-it" type is closely related to traditional practices. Learning a surgical procedure is evaluated through direct performance observation. This example would be classified as a sponsored activity. The second, called "professional role association," is more abstract but is also sponsored-learning to be a successful public administrator or a labor negotiator. Evaluation of these competencies requires more than written tests and faculty subjective judgment. A competent practitioner or supervisor is often employed to supplement traditional evaluative means.

The third type, "learner managed experiential learning," is clearly in the nonsponsored category. This has been called "a thorny thicket."[9] How can a faculty reach a reasonable judgment by introducing external evaluation to self-determined and individually-controlled learning? In these requests (type 3b on the student chart) the learner must submit precise objectives and alternatives for evaluating success in reaching them. In turn, the faculty issuing the credit must determine if the learning can be articulated with a degree program.

The third dimension of instructor/student associated instructional techniques which is largely controlled by students is subject to unusual scrutiny under the determination to maintain high academic standards under institutional and instructor-controlled conditions. Nonsponsored experiential learning has indeed become a legitimate and powerful movement which the Educational Establishment must eventually recognize.

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INSTRUCTIONAL TYPOLOGY

Instructors - Institutions

		Procedures Activities	Experiences Outcomes	Procedures Experiences
1		yes	yes	yes
2		yes	yes	yes
3	a	yes	no	--
	b	no	no	no

Individuals - Students

		Procedures Activities	Experiences Outcomes	Procedures Experiences
1		no	no	no
2		somewhat	somewhat	somewhat
3	a	no	yes	--
	b	yes	yes	yes

1 - procedures and activities largely controlled by instructors
2 - procedures and activities selected mutually by instructors and students
3 - procedures and experiences largely controlled by students

a - sponsored procedures and activities
b - nonsponsored procedures and activities

THIS ISN'T MEANT TO BE FUN, YOU'RE SUPPOSED TO BE LEARNING!

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INTRODUCTION

The Faculty of Business Studies at the NSWIT conducts degree studies in four major areas. One of these is Marketing. In the School of Marketing the subject Sales Administration is taken as part of a Marketing major in the fourth semester of a six semester course for full time students. The major objective of the subject is:

> "To develop an appreciation of the functional aspect of the sales management task, within the broader context of marketing management." Further detail from the Handbook says that:

"The course focuses on the functional aspects of the task of sales force management. Particular emphasis is given to the area of objective setting, policy formulation, sales organisations, distributive network relations, personnel aspects, motivation, territory management, supervision, budgeting, analysis and control. The teaching orientation seeks to relate these subjects to other segments of the course such as marketing, organisation theory, and accounting."

Until 1979 30% of the subject was assessed by project work, which involved a presentation to the class and the subsequent writing up of the project. The other 70% of the assessment was carried out by

mid semester exam	30%
final exam	30%
class work	10%

In 1979 the lecturer in charge of the subject, who was himself undertaking a post graduate diploma in Communication, decided that the ability to communicate in non-print media was a valuable attribute for a marketer, and decided in Sales Administration to change the project to a requirement that small groups of students should produce an audio-visual segment on some aspect of Sales Administration, which could be used for on-site training in the work situation.

LINKS WITH THEORY

It is not really appropriate to merely locate this decision and the subsequent student activity in the rather vague area known as experiential learning and simply to claim the benefits which such learning gives students. Insofar as there are definitions of experiential education, Boud and Pascoe (1978) have identified three characteristics of such learning:

a) the full involvement of the student - i.e the whole person is fully engaged in the learning activity, both intellectually and emotionally.

b) the correspondence of the learning activity with activities which take place out of the institution. This in the "experienced based" definition with which perhaps we are most familiar.

c) Learner control over the learning activity i.e. if students are to genuinely own the experience and integrate it into their own mode of operation in the world then they need not only to be involved but to experience the results of their own decisions.

In the subject under discussion the truest form of experiental learning would presumably be an extended actual or simulated period of managing a sales force. While the idea is not out of the question - this lecturer also conducts a subject called Personal Selling in which the individual student project was the selling to a large public company of a NSWIT - sponsored library search service at $2,000 p.a. subscription - its practicality was such that in seeking a direct and experiential slant to student activities in the subject, the AV segment was chosen instead. Thus the requirement to produce an AV segment fulfills much of characteristics a) and c) above, but is probably not very congruent with b) - i.e. the correspondence of the learning activity with the outside world. On the other hand, such a requirement of students involves them in "doing" rather than passively "learning about".

Another area of theoretical interest is that of the work of Kolb and Fry (1975), who postulated four key abilities in the learning process -

concrete experience abilities
reflective observation abilities
abstract conceptualisation abilities
active experimentation abilities

Experimental work by these authors has resulted in the arbitrary delineation of four "types" of learners, and these types then have implications for preferred or most favourable learning strategies for each type.

These four types are

- accommodators
- divergers
- convergers
- assimilators

Business studies students, according to the research evidence, fall unequivocally into the "accommodator" category, Kolb and Fry say of the accommodator:

> "The Accommodator has the opposite strength of the Assimilator. He is best at Concrete Experience (CE) and Active Experimentation (AE). His greatest strength lies in doing things; in carrying out plans and experiments and involving himself in new experiences. He tends to be more of a risk-taker than people with the other three learning styles. We have labelled this style 'Accommodator' because he tends to excell in those situations where he must adapt himself to specific immediate circumstances. He tends to solve problems in an intuitive trial - and - error manner (Growchow, 1973) (9) relying heavily on other people for information rather than his own analytic ability (Stabell, 1973) (10)."

If this has validity, then concrete experience and active experimentation are potent learning styles for such students, and thus the requirement of the AV segment ought to enhance and stimulate interest and learning.

OBJECTIVES OF THE AV SEGMENT

Such a requirement, it seemed, might in this case achieve several objectives - a) the researching for the content of the AV segment would help learning in the subject.

b) to actually handle equipment and script an AV segment would teach new skills and would help students to become literate in these media.

c) students would gain a new appreciation of the power of AV communication and an insight into how it works.

d) students would find it more stimulating than project work and hence become more involved in the subject.

This paper will take these four objectives and examine the extent to which they appeared to have been achieved in the first two semesters in which the AV segment was a requirement in the subject. This will be done by analysing a questionnaire which was administered to all students in the subject when it ran in Autumn and Spring semesters in 1979. It will also be done by a subjective evaluation of the worth of the AV segments produced, in which exercise you the audience will help.

PROCEDURE FOR AV SEGMENT

In the first week of the semester students were asked to form themselves into small groups of between 4 to 6 people.

Each group chose a topic from the syllabus, and were expected to do most of the work associated with the requirement in their own time. They had access to some rather inferior black and white portapak equipment, but were not confined to video. In the event, 8 mm film and tape/slide media were also used, although video remained most popular. The video equipment was scarce and in poor condition so final productions often suffered technically for reasons quite beyond the control of the group. In the first year all classes were briefed on the essentials of AV production - basically using the equipment and the production of a storyboard. They were also required to act out in front of the class to get feedback from the lecturer and class before final shooting was carried out.

In the last two weeks of teaching, the groups presented their AV segments to the class. They were assessed at this viewing by the subject lecturer and by me - he rated for content, I rated for AV communication. I gave immediate verbal feedback at the end of each class (during which there would have been 2 - 4 presentations). We subsequently arrived at a mark for the group which each member then received.

WHO WERE THE STUDENTS?

At the conclusion of the first two semesters an identical questionnaire was administered to all students. The following data come from combining the responses over both semesters.

A total of 120 students answered the questionnaire over two semesters.

66% of these were over 21.
17.5% of these were female.
40% were in full time employment.
24% were in part time employment.
26% of all respondents thought the subject was quite relevant to the work they did. The rest either saw it as having little to no relevance, or else as being not applicable (i.e. for full time students without part time jobs).

So the students taking this subject were likely to be employed, likely to be older, likely to be men, but not very likely to see the subject as having direct relevance to the job they did at the time.

WHAT DID THEY THINK OF THE AV SEGMENT?

A. Was the time it took related to its value? (i.e. 30% of final mark)

Only 37% felt that the time it took was related to its value while 47% of students thought it took more than 30% of the time they gave to the subject, and 11.6% said it took much more time. In other words, well over half of all students felt that they gave it more than it was worth as a proportion of their mark.

B. Is it an appropriate activity for the subject?

Two thirds of all students agreed that it was an appropriate activity.

C. How evenly was the intra group workload spread?

59% reported that everyone in their group did about the same amount of work for the AV segment; 22% said others worked harder than them, while 12.5% said that they themselves put in more work than anyone else in their group.

D. How enjoyable was it?

89% said that it had been quite - very enjoyable; 5% said it had not been enjoyable.

E. How valuable an experience was it?

79% said it had been quite - very valuable; 15% said it had been of little value.

In summary, students tended to see it as a time consuming but appropriate activity in the subject, with a reasonably well spread workload over the group membership. It was enjoyed by most students but was not seen to be quite as valuable as it was enjoyable.

WHAT WERE THE LEARNING OUTCOMES FOR STUDENTS OF THE REQUIREMENT TO PRODUCE AN AV SEGMENT?

Students were asked: To what extent did the process of producing an AV segment teach you something you did not previously know about
- a) the subject
- b) use of AV machinery
- c) AV communication

Responses are summarised below:

	Subject	Use of AV machinery	AV Communication
Very much/quite a lot	30%	50%	59%
To some extent	33%	23%	26%
Little/none	31%	18%	10%

From the above it would seem that the most effective learning was about communication rather than the subject content. This is reinforced by answers to an open question which asked them to specify the nature of the learning:

The following are representative sample responses:

* The AV exercise aided my learning because you have to thoroughly understand the material before you can present it in an AV presentation.

* I believe that it helped more, on learning the technicalities of film producing rather than emphasizing on the subject.

* Helped most in learning about effective communication: getting the message across without boring the audience and make it realistic.

* It taught me that communication is a hard medium to achieve.

* How to co-ordinate plan + execute an idea into a production that was fraught with some technical difficulties. We learnt that nothing in life is easy, very smartly.

* I understand the topic we concentrated on better. You tend to take more in, when you apply the information to be learnt, to something like a AV presentation.

* I feel learnt how difficult it is to transform a mental image into an AV presentation and get a message across as you intended.

* We researched the topic, discussed the best way to convey what we thought were the main points and it reinforced our own understanding of the theme.

* It helped with co-ordination and timing with people. Also learnt how to use AV equipment.

* Group cohesiveness and organisation.

* Not enough was learnt relevant to the subject. The interviewing of a Sales Rep. or Manager may have perhaps been more benefit.

* I have a greater respect with regard to the use of A.V. I understand that it can be a useful form of communication.

Three open questions asked about specific topics or areas: Students were asked:

Would you please write in briefly what you learned about the use of AV machinery.

The following are representative sample responses:

* I used a camera and cassette recorder.

* How to operate the camera and backpack. Depth of Focus.

* Zooming in/out. Focusing on the central object.

* Requires some training to use it effectively.

* Some simple technical tricks.

* How it works, the importance of light and timing, the need for care and how to adjust sound and distance.

* Little, as my part required only acting and providing props.

* Light settings and operation of advanced AV machinery and difficulties in obtaining clear, correct photos.

* The method of blending audio with visual. Camera technique.

* It's harder than it seems.

* Not to fear the medium. Suprised at how simple it was

Students were also asked:

Would you please write in breifly what you learned about the techniques of AV communication. Some sample responses were:

* Visual effects (e.g. face to camera instead of profile) can make or break presentation even if a good script.

* Don't think in terms of what you see, but what the camera sees.

* This involves more skill than just filming something.

* Can be very effective in getting the message across - more so than other media.

* Using the visual aspect to say what you want without the audio part.

* How to prepare for a production e.g. story boards etc. and script.

* It takes a long time and co-ordination to do a short film.

Finally students were asked:

Would you please write in briefly what you learned about anything else in the course of making the AV segment.

* How to co-operate with 3 other people to produce the finished video.

* The preparation of a production from inception to viewing is an integrated system not a patchwork quilt.

* Appreciate the difficulties in organising people - but good fun.

* That a job like this cannot effectively be done overnight.

* The great amount of time and organisation required for such a project.

- Co-operating as a group.

- Communication with other group effort - you must contribute to group.

- General complexities of organising sequences into time allowed.

- Fascinating to see yourself on film - whole process - sound, film - incredible.

WERE THE OBJECTIVES ACHIEVED?

a) Researching for the content of the AV segment will help learning in the subject.

While some increased learning of subject matter was noted by students, this objective did not seem to be very successfully achieved - clearly, cognitive learning was the least interesting thing about the AV segment.

b) To handle equipment and script an AV segment will teach new skills and will help students to become literate in these media.

c) Students will gain a new appreciation of the power of AV communication and an insight into how it works.

There seems to be considerable evidence that students did indeed gain insights into the use of AV media - for some it was quite profound, in spite of difficulties with equipment.

d) Students will find it more stimulating than project work and hence become more involved in the subject.

It did seem to have stimulated interest and enthusiasm, but for the media experiences, not necessarily the subject content.

CONCLUSION

Any summing up must be highly subjective in the circumstances. Overall, the exercise could be said to have been successful in achieving its objectives, and in the process, of involving most students fully in the activities. However, it is fairly clear that the factor not really taken into calculation by the lecturer was the amount of time that was needed for any halfway successful AV production to be achieved. The uncalculated spin off for students was an absorption by the media and their respective difficulties, and a new interest and insight for many into how they work as channels of pursuasion and communication.

Thus, whether the activity fits happily into the major objectives of the subject is an open question, but if students in Business Studies get no other experential exposture to the use of media, then the activity undoubtedly fits into the overall Faculty objectives for its graduates. My suggestion is that if such exposure is judged to be a good thing, then it should be programmed realistically into the course in such a way that students have more time and incentive to take it seriously.

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IMPROVING THE TUTORIAL

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Although the value of small group learning has now become an article of faith in institutions of higher education, this method of teaching is not without its disadvantages. Perhaps one of the most important of these involves student reluctance to do the necessary preparation before their tutorial or seminar session. This problem provided the central focus for a two-hour workshop session designed to explore various ways of increasing student participation.

The session began with an acquaintanceship exercise. Each participant paired up with another group member, preferably someone who was a stranger, and discussed the question: "What are the joys and despairs of conducting tutorial/seminar sessions?" After five minutes of such discussion, new pairs were formed, the question this time being: "What important problems do you find in tutorial/seminar sessions?"

This activity achieved the dual purpose of getting everyone talking at the beginning of the session and also of generating material which was to provide the stimulus for the workshop. Too often, I believe, we begin small group sessions by delivering lecturettes, talking for perhaps 10-15 minutes 'to get things started'. Unfortunately, we often achieve the opposite, establishing a model of tutor activity and student passivity which can prevail throughout the whole year.

Once pairs of participants had identified the main problems of small group teaching, we came together to record these on the blackboard. Considerable agreement was apparent, with student lack of preparation emerging as the problem most likely to destroy the academic effectiveness of tutorials and seminars. Participants contributed very readily at this stage, having already been able to try out their ideas in the pairs' discussion. That is another great advantage of the technique for the pair provides a safe environment, free of the stress involved in speaking out in the main group.

Once the key problem of student unpreparedness was identified, the workshop group stopped to consider what had happened so far. Discussion focussed on how quickly initial 'stiffness' and hesitancy had vanished, being replaced by animation and enthusiasm. So two things were being accomplished at this point. Firstly, participants were using techniques designed to increase participation. Secondly, they were able to draw on this experience as they related the things they were doing to their own 'back home' situation. These two threads continued throughout the workshop - actual use of techniques and discussion of their broader applicability.

Participants now worked as individuals for a few minutes, reading stimulus 'hand-out' material. This was a description of an exercise designed to help students read books more effectively. After each group member completed his reading, he joined three colleagues to discuss how he might be able to use the method in his own discipline.

After approximately 10 minutes, these sub-groups of four were disbanded and two more 'hand-outs' were issued. Half of the group read one of these which described the *nominal group technique* (Delbecq and van de Ven, 1971), the other read the second, which outlined Nisbet's (1966) *'six best statements' approach*. Peer teaching then took place. The person who had read the nominal group material 'taught it' to his partner. When he finished, his partner 'taught' him about Nisbet's approach.

This activity was followed by a further plenary session of the 18 participants in which these techniques were discussed. *The input of stimulus material*, based on Abercrombie's (1969) idea of providing a common focus for students at the beginning of a session, was seen as overcoming the problem of student non-preparation. 'Hand-out' material, films, slides, or a demonstration are all ways of ensuring that the tutor can assume a certain common knowledge in his group.

However, the issue of reinforcement becomes important in this situation. If the tutor uses this method constantly, providing stimulus material at the commencement of every tutorial or seminar, he is reinforcing students' behaviour of non-preparation. He is actually saying: "Don't bother about doing the work I set because I'll give it to you in the session". The peer teaching or *learning cell approach* does not have this disadvantage. In fact, it encourages students to prepare, for, if they do not, they let down one of their peers. It is interesting to note that while students show very little concern for letting down their tutor by non-preparation of work considered important to the tutorial's success, they are reluctant to do so when peers are the sufferers.

The learning cell format depends for its success on students preparing material for a particular tutorial or seminar session. In the workshop session, participants worked with 'hand-out' material. However, under normal circumstances, students are allotted their task for the next tutorial during the current one. Either different material is covered by different group members - the 'teaching-to-another' alternative or all students read the same material. In this case, they arrive for their next session armed with 10 questions derived from their reading. One member of a pair asks the other his first question. If it is answered satisfactorily, the other member asks his first question. If the answer is not satisfactory, clarification and explanation by the questioner then follow.

This latter means of using the learning cell carries an additional advantage. The student provides the tutor with a copy of his 10 questions, which are supposed to focus on the most important aspects of the reading. However, if a particular student is missing, the point of the material he is covering his questions will reveal this and the tutor can take remedial action.

Stimulus material input and the learning cell are two ways of increasing student participation and two ways of coping with the problem. So, too, are the nominal group technique and Nisbet's 'six best statements'. The former involves several distinct stages. The first of these sees students working alone, writing down as many solutions as possible to the problem posed by the tutor. Next, students voice their solutions as the tutor, without comment, notes them on the blackboard. Group discussion then ensues. Considerable combining and recombining of ideas takes place at this time, together with calrification and elaboration of individual solutions. Stage four involves each student considering the solutions which have emerged from the previous stage and rating them in terms of his opinion of their effectiveness. A final step pools these ratings to arrive at the 'best' solution. This technique is very suitable for tutorial and seminar use for many such sessions revolve around key questions or problems to which answers or solutions are sought.

Nisbet's approach is for students to assume leadership of a particular session by providing 'six statements worth making' about the set topic. These statements are to be brief (expressed in terms of a single sentence), clear, important, and controversial. Once the student leader has circulated his statements and spoken briefly to them, the session is open for general discussion. Often, two sessions are used for a single topic, the first permitting a very relaxed, informal, 'free-wheeling' approach and the second being much more disciplined as agreement is sought for successive reformulations of the six statements.

As workshop participants discussed both the techniques they had been using and those about which they had been reading, their realization of the value of variety became increasingly obvious. Techniques to increase student participation and to cope with non-preparation are tools, capable of use or misuse. Overuse any particular approach, no matter how powerful, and its effectiveness will be quickly blunted. However, employing different approaches in different sessions is likely to maintain both tutor and student interest, contributing to an atmosphere in which learning is enjoyable.

Variety, then, is valuable. Participants in the workshop recognized this, just as they recognized that allowing students to share in the responsibility for conducting successful tutorial and seminar sessions is also likely to enhance group learning and cohesiveness. When a session is going poorly, a tutor might stop proceedings and look at process. He can express his disquiet, his anxiety, with the way things are going and find out how the students are feeling. Individual students can be encouraged to do likewise, for tutorials and seminars are supposed to be for their benefit. If they feel they are not getting these benefits, they should be encouraged to speak up, suggesting alternatives which might be more productive. In this way, tutor and students work together to create a group in which learning is maximized.

One simple way to encourage this sharing is to use the 'hidden agenda' technique. At a particular point in a session, when the tutor feels things are not going well, he can ask group members to write down what they are thinking about at that moment. Some censoring takes place, of course, but it does become immediately apparent whether students are focussed on the academic issue under discussion or whether their thoughts are elsewhere. If the latter is the case, reasons for their inattention can be brought to the surface. Based on this information, the tutor may restructure the session to produce more positive learning outcomes.

Evaluative questions asked at the end of a tutorial can also produce valuable information. These might take the form:

What was the best feature (features) of the session?
What was the worst feature (features) of the session?
What could be done to help you learn more effectively in the next session?

Sometimes these questions could be answered orally. At other times, it is helpful to have students write their answers for later perusal by the tutor.

Such issues were explored by workshop participants in terms of their own subject matter backgrounds. Interestingly enough, several group members felt the techniques experienced in the workshop were applicable to scientific/engineering/mathematics type tutorials as a variant to, or a replacement of, the problem-solving sessions. However, the barrier to any such change was seen as being lecturer' attitudes. Being brought up on the idea that problem-solving is the only legitimate way of using tutorial time, science/engineering/mathematics tutors would find it hard to accept that methods used in the humanities and social sciences could have any possible application to their own fields.

In general terms, the workshop itself reflected the values I was encouraging participants to embody in their own tutorial and seminar sessions. Certainly, we learnt a lot - new techniques and new ways of using techniques we already possessed - and we also enjoyed the learning process. When group members were asked about 'worst features' of the workshop, several saw shortness of time as the villain. Two hours had indeed passed very quickly. That in itself would suggest a certain measure of success for, when we enjoy ourselves, times does speed by. Yet, so often the 50 minutes of a tutorial or seminar can really drag. Perhaps the use of the varied approaches experienced in the workshop will enable participants to make such 50 minute sessions a more enjoyable learning experience both for themselves and for their students.

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DOUBLE-WIN PROBLEM SOLVING

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When two people handle a problem in a way that allows both of them to achieve their goals, that's a double-win. Such an outcome provides a practical solution to a real problem while simultaneously strengthening the relationship between two people so that they are motivated to continue to work together in the future. The seminar taught specific problem solving, discussion skills relevant to academic-to-academic and academic-to-student interactions.

PRACTISING WHAT YOU PREACH

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This presentation is concerned with our concept of reflexivity, and specifically with examining how well a particular course mirrors the distinctive values and philosophy of its content.

Reflexivity is concerned with the degree of congruence or match between all aspects of a situation - do they all send the same message to the listener or participant. The factors important in a learning situation are the task, the method and the relationship between the teacher and learner. All these need to reflect the same values to the student and provide a gestalt of the area being studied. For example, if the aim is to develop questioning skills, then the task should require questioning skills for its completion, the methodology of the course should be based on asking questions and the relationship between student and teacher should be built around having to find out information by questions.

The learning situation can be examined in terms of clarity of communication. Three factors seem to us to be prerequisite for the clear communication and learning of a message and fundamental for reflexivity.

Repetition - The more frequently a person hears the same message the greater the probability of learning. If task, method and relationship all give the same message, then the learning should be enhanced.

Reinforcement - If the behaviour required in a situation supports the attitudes being developed and vice versa, some attitude change theories (e.g. cognitive consistency theories), would predict greater and more lasting attitude and behaviour change.

Rapport - Work by Rogers (1951), Bandler and Grinder (1975) suggests that a helper or teacher is more likely to be effective in changing attitudes if the way in which they behave is congruent with what they say and if there is some attempt to fit the medium of the message to the preferred 'receiving mode' of the recipient.

So for example, is it really possible for a person unwilling to share personal experiences, to convince students learning counselling of the necessity of "openness" as a characteristic of good counselling? In education, this congruence or reflexivity is especially important where attitudes, values and behaviours are being taught and/or learnt.

My objectives for this session are:-

- to provide a forum for examining some aspects of designing courses 'reflexively';
- to share some experiences and current dilemmas in relation to our course;
- for you as a resource group to suggest improvements to our course by raising issues and ideas.

THE COURSE.

In July, 1979, the Department of Administrative Studies at R.M.I.T. started a 2 year Graduate Diploma in Organization Change and Development.

The course aims basically to further develop people skilled in assisting organizations to develop, and successfully implement change strategies. In particular, participants are able to:-

- acquire a sound knowledge of organizations, their design, development and change;
- develop their own interpersonal and consulting skills;
- become competent in:
  - diagnosing the need for change;
  - implementing change strategies;
  - evaluating change.

We have tried to design this Course to meet these objectives while reflecting two sets of values which we believe to be highly compatible.

(i) the values underlying the discipline of Organization Development,

& (ii) the values underlying our educational philosophy.

(i) "Organization development is concerned with managing change in organizations in order to increase effectiveness and to provide more satisfying work experiences for organization members. It is distinguished from other organization change processes because it

> emphasises the human side of the organization and stresses collaborative ways of working. It seeks, therefore, to avoid manipulative approaches and 'instant' solutions."
> (R.M.I.T., 1980).

In Appendix 1 there is another definition of Organization Development from a text, and two lists of some key characteristics one finds in the majority of definitions.

These then are the underlying aspects of the content area but more importantly they indicate the philosophical base we are trying to reflect in our course.

(ii) Our educational philosophy is, in our opinion, a unique feature of the program. The approach is based on the work of Knowles (1970) and kindred writers who believe adults learn best by active participation in the learning process and particularly by choosing what is most relevant for them to learn and how best they can achieve their learning goals. Some types of learning are best accommodated by particular approaches, e.g. skills through practice, knowledge through experience. We, therefore, provide a variety of learning opportunities. Participants are expected to take responsibility for meeting their own learning needs through consultation and negotiation with staff and fellow participants.

It follows that participants are responsible for setting their own specific learning objectives within the broader course objectives. Assessment methods involve negotiation to the mutual satisfaction of the staff, the individual and the group.

Congruence between assessment method (the feedback, reward system) as well as content, and the value base of a course is critical. This is a major aspect of 'Managing the culture of the total system' (Appendix 1, b4, French & Bell, 1978).

COURSE DETAILS.

Details of the course and some data on our first group of participants is given in Appendix 2.

We are dealing with a very heterogenous group in terms of educational background, work experiences and theoretical knowledge of organizations. The majority however are in the 'people' business, and all were highly motivated to join the program.

[At this point of the session, the audience was invited to break into small groups and focus on the task:- If you had to design this course,

(1) What aspects/elements would you focus on/ build into the design?

(2) What is the principle (O.D. or educational) behind each?

After half an hour, the discussion of the groups were shared, with some useful ideas emerging. See Appendix 3.]

OUR COURSE EXPERIENCES TO DATE.

We are now half way through the program and can look back at some successes and failures in the way we have designed the program. The following issues focus specifically on the congruence between the course and its content.

Links between what we do in the course and the French and Bell list of characteristics of O.D., included in Appendix 1b are indicated by the numbers in brackets in the following text.

(i) Entry. The course formally started in July, 1980. From February onwards the course staff and intending participants went through a process of mutual selection. For example, we offered an evening using our experiential teaching approach and working in small groups so people would know what to expect. We were available for personal consultations. We provided materials for self rating on the content and skills areas and used these during an individual interview as a basis for talking about self development. At the interview we particularly focused on helping participants consider the personal time committments required and their organization's commitment. If people were still interested after this process, we made some judgements about their suitability to work in a large group and their attitudes towards personal reflection and learning.

The process we used was one of joint contracting with each party stating its expectations and needs, so as to reach sufficient agreement to continue working together - a basic prerequisite for a collaborative relationship (3). We also use some form of learning contracts at the beginning of each semester.

Overall, this has worked well. It has reflected a critical element of the consultative process in the course. The main area of weakness is in the relationship of the course to the student's organization (5). This was not dealt with formally. How serious this is will emerge when projects need to be developed in the participants' organizations next semester.

(ii) Use of Consultant (7).

We have two staff members present at most sessions. They act in a number of roles, e.g. teacher, facilitator, resource, advocate, counsellor, all of which we see as part of a consultant's role in relation to a client. So they and hopefully, other participants, provide relevant role models. We also invite in outside consultants for both content input and sharing their personal styles of consulting.

I am unsure how to measure the effectiveness of our behaviour apart from feeling it has not been as potent as I would have liked it to be. We, the staff, were unable to develop amongst ourselves a shared picture of the role we should play and how we would work together in the role. This was not helped by three staff working with the course in first semester and two in the second - only one of whom was common to both semesters.

Personally, I have tried to resolve the issue by ensuring a wide variety of role models within the course and by personally trying on occasions to distance myself sufficiently to behave as if I were an external consultant.

The confusion of personal roles is a problem for me - Course Co-ordinator (Management), Teacher (expert Consultant), Facilitator (collaborative working) and Learner (peer and/or dependant). I find that a personal support system is very important.

We have thus modelled the multiple roles of a consultant and shared some of the role conflicts that have arisen. However, I am not sure the relationship between staff and participants is similar enought to a client - consultant relationship to adequately reflect a genuine consulting situation.

(iii) Collaborative Working (3).

The trick here is to work together at a level with which both parties are able to cope. The Hersey and Blanchard model of leadership (1977) expresses this very well.

Our approach was to give the participants the necessary basic skills and knowledge in first semester and then provide opportunities to use and build on these at their own pace in later semesters.

We worked hard to avoid a didactic approach by providing reading lists and using class time for exercises and discussions. Also, having identified gaps in knowledge, students gave the presentations of the factual data rather than the staff. Much work also went on in 'home groups' - self selected groups of 4-7 students who were given the task of developing a group model of how they believed organizations 'worked'. This enabled students to share the required reading and come to grips with the knowledge area by applying the concepts to the task.

In terms of effectiveness, students now seem to know more than when they started! They certainly know where to start looking for material if they need it. The payoffs of our structure were particularly obvious in the development of social relationships between students and in their awareness of small group dynamics. Two major discrepancies have become obvious. We did not start from experienced behaviour and we started with a 'teacher-student' relationship. We have had some difficulty in undoing this. It has manifested itself in some reluctance to use other students as resources, and in the small number of students (5) who took up the offer of working with us to design the course for second semester

(iv) Process vs. Task (1).

This is a recurrent issue in consulting. 'As long as we get the task done, does it really matter how we do it'? I personally would say 'Yes'. A cost conscious manager would probably say 'No'. Yet the answer is in between - 'Yes, sometimes'. But when?

We have tried to work to the principle that processing should facilitate the task by being timely and appropriate. And that there are four levels of possible process intervention:- Theory, Role, Inter-personal and Intra-personal.

The critical problem for decision is what the task actually is at any particular moment. As an example, we might be talking about industrial democracy (content), two people might be disagreeing (here and now experience) and one of them may have 'being more assertive' in their personal learning contract (intra-personal). Added to that we have some accepted ground rules within the group concerning 'immediacy' - deal with an issue now rather than wait till the end of class.

So which task do we process and at what level?

We have not resolved this issue. It seems to be a perennial one for consultants in terms of when to intervene or not; at what level, etc. We have to some extent been able to share these dilemmas with the group and discuss the issue.

CONCLUSION.

For any course I manage, I measure its effectiveness by whether the students have 'learnt' enough of the things I think important and they think important for us both to be satisfied. If the learning involves examining personal attitudes and behaviours, then planning content is not enough. It is part of my responsibility to provide a structure and environment that facilitates that learning. Reflexivity or congruence between structure and content is one model I use to help me plan a course.

This requirement has been particularly important, as in this course the philosophy or orientation is what needs to be integrated by the participants. Content is primarily a means to this end. After examining French and Bell's 8 Characteristics of Interventions (App. 1b), my impression is that we have managed to structure the course to satisfy a number of these to some extent but as always in this exciting business of teaching and learning, there is still room for improvement.

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APPENDIX 1.

ORGANIZATION DEVELOPMENT:- DEFINITION.

> "In the behavioural science, and perhaps ideal, sense of the term, organization development is a long-range effort to improve an organization's problem-solving and renewal processes, particularly through a more effective and collaborative management of organization culture - with special emphasis on the culture of formal work teams - with the assistance of a change agent, or catalyst, and the use of the theory and technology of applied behavioural science, including action research."

French, W. and Bell, C. (1978).

(a) Some Key characteristics of Organization Development.

1. Change is the core concept.
2. Long term (2-3 years).
3. Planned - diagnosis, plan, mobilizing resources, action, evaluation.
4. Total System, i.e. relatively free from external constraints.
5. Managed and/or committment from the top.
6. Increases organizational effectiveness/competance (Huse & Bowditch, 1977).
7. Planned interventions - many, mixed mode.
8. Change Agent - external to the system.
9. Behavioural science knowledge.
10. Action research model/collaborative approach.
11. Normative - reeducative approach - changing attitudes and behaviour; based on experienced behaviour.
12. Focused on the social system/groups.

(b) "We see eight characteristics that we think differentiate organization development interventions from more traditional inverventions:

1. An emphasis, although not exclusively so, on group and organizational processes in contrast to substantive content.
2. An emphasis on the work team as the key unit for learning more effective modes of organization behaviour.
3. An emphasis on the collaborative management of work-team culture.
4. An emphasis on the management of the culture of the total system.
5. Attention to the management of system ramifications.
6. The use of the action research model.
7. The use of a behavioural scientist-change agent, sometimes referred to as a "catalyst" or "facilitator."
8. A view of the change effort as an ongoing process."

French and Bell, 1978.

APPENDIX 2.

TITLE: Graduate Diploma in Organization Change and Development.

TIME: 2 years part-time. Equivalent of 8 hours for 4 fourteen week semesters.

UNIT TITLES:

1. Organization Systems & Human Behaviour.
2. Inter-personal and Consulting Skills 1.
3. Inter-personal and Consulting Skills 2.
4. Introduction to Organization Development.
5. Intervention and Change in Organizations.
6. Action Research Project 1.
7. Action Research Project 2.

STUDENT DETAILS:

Places Offered = 25. There are at present 18 students, ages 25-55 years, 14 men and 4 women.

Background: From no tertiary qualifications to Masters level in areas ranging from Pharmacy and Architecture to Psychology and Business Administration.

Employers:

Public Servants	- 8.
Bank, Health Insurance	- 3.
Tertiary Education	- 2.
Mixed-Private Industry	- 5.

APPENDIX 3.

IDEAS/ISSUES ARISING FROM DISCUSSIONS AT THE HERDA CONFERENCE.

Entry:

- Importance of clarifying objectives - ours and intending participants.
- How to select people. Is selecting a range or balance of men/women, young/old for example, any better than randomly choosing any twenty-five of the applicants?

Starting:

- Start with a problem, personal experience or diagnosis and work from there.
- Start by comparing present and desired future state of individuals or group.
- Put theory first, then use of it.
- Use peer learning. This requires a method for handling differences in the group.
- How do you manage individual development and learning in a group setting?

'Working':

- Self monitoring.
- A lot of use of participant's own organization.
- A lot of use of day to day experiences.
- Provide tools so participants can work on describing their own organization.
- Needs to deal with power and conflict in the group and home organization (an area not dealt with well by most human relations perspectives).
- Need to have opportunities to practise change and changing in group and outside.
- How to build-in coping with change.
- More use of telephones as a 'contacting' mechanism (besides face-to-face work).
- Need to examine ethical issues of change and the morality of attitude change. Should we be teaching the area anyway?

- Need to include material on how attitudes change.
- Provide role models.

CLINICAL PRACTICE BY SIMULATION IN LAW AND SOCIAL WORK

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This paper discusses the development and evaluation of a package that was designed to simulate the Family Court of Australia. The origins of the simulation derive from the problems associated with access to the Family Court as it is a closed court, and the need to examine the relationship between two professions that work in the Family Court. The point of the simulation was to examine the unexpected effects which may not be obvious from simple discussion of the subject. The simulation provides a situation where the less rational aspects of court work can manifest themselves. For example, law students may find many new interpersonal problems when they are confronted with the idiosyncrasies of clients, and trainee counsellors may find the intricacies of the law daunting.

Teaching social work practice

In terms of the goals of the social work course, working with legal resources and an awareness of the legal connotation of social work practice in all areas is becoming increasingly important due to:-

(a) the increased development and availability of legal services designed to help disadvantaged groups e.g. legal aid offices, administrative appeal structures, improved consumer protection and landlord/tenant laws, and police warning systems for juvenile offenders,

(b) the funding of approved marriage counselling organizations by the Attorney General under section 11 of the Family Law Act of Australia (1975),

(c) the duty to refer to counselling services under Section 14 of the Family Law Act (1975),

(d) proposals to change Mental Health laws in Victoria and legislation concerned with drug and alcohol addiction,

(f) legal implications of child abuse and dispensation from parental consent to adoption,

(g) client and social worker awareness of civil rights e.g. in Children's Court proceedings,

(h) development of social work practice in an explicitly legal setting e.g. counselling in the Family Court, social work in jails, legal services attached directly to welfare agencies, or the development of a welfare service in legal aid offices, such as the Fitroy Legal Service.

Social work schools experience great difficulty getting practice experience (fieldwork) for their students. For example, there are no openings in the Family Court for students, although the counselling service has been active for five years. The rather reluctant acceptance of official counselling in courts due to its novelty and the consequent lack of appreciation of its method by the legal profession, led to the suggestion that we try to develop a simulated learning environment. The Social Studies Department had run intensive interviewing simulation courses for all its students and was familiar with the basic idea in theory and practice.

Teaching Family Law

Working within a normal university law course there are few opportunities for law students to experience the pressures of contact with clients who seek legal advice and resolution of problems through the courts. The use of simulated encounters with clients and the Family Court provides an opportunity to: experience the pressure of practice in a field of law which is often fraught with deeply felt emotional involvement on the part of clients and the need to negotiate court process quickly in cases of emergency; and practice those skills with which a solicitor or barrister needs to be equipped, such as practical skills of handling clients and refering cases for counselling. The first of these objectives can be achieved in simulated office encounters with clients who are well prepared or 'briefed' into their roles. The environment can be manipulated to approximate the busy office schedule; document preparation and other associated matters can also occur. The second objective can be achieved in the process of achieving the first. Necessary skills include:

(a) elementary interviewing techniques appropriate for different types of clients;

(b) giving advice clearly and simply;

(c) negotiation with other solicitors, such as a timetable for projected action in court or possible matters which can be the subject of consent between parties;

(d) negotiation with court officials regarding listing of matters before the court and filing of documents;

(e) preparation of appropriate documents; and

(f) making appearances in the Family Court.

The amount of time available for the simulation affected the emphasis which was given to the various skills mentioned. For example, the preparation of documents as a skill in itself was only given a cursory treatment if the time between taking instructions from a client and filing the documents was very short. Nevertheless, the need for documents to be filed and the type of material which they cover was clearly demonstrated no matter how short the time, provided the court processes were simulated step by step.

Simulation design

A simulation is different from a game in that, unlike a game there is not a clearly defined rule set or modes of action, neither is there a high degree of consensus about the rules that govern the way the two professions interact. Any rules that do exist are taken from the established precedents of court procedure; relationships between professionals are largely determined by unwritten rules that vary with each relationship. The major design consideration was to provide an experience in which the non-formal aspects of the family court were discussed. In particular it was hoped to promote learning by the discussion and isolation of learning points as the simulation progressed, thus each episode was to be reinforced by de-briefing before the participant continued with the next step. In this way it was possible to examine the rules by which the court operated and the two professions interacted. This examination of the meta-rules of the process was adopted to allow the students to relate the formalizations of the simulation to the constructs that are being formalized (Cherryholmes, 1966). For these reasons the focus was upon the possible moves at various points in progresssion through the court rather than termination moves which would focus more on winning and losing of the simulated case.

The simulation was organized around the episode; an interview, a callover, a counselling interview, a hearing, etc. In this simulation about the Family Court, participants were required to select roles to be simulated; to brief participants into their role; to be briefed into a role they were to play; to play out a scenario where participants interact in roles; and to audit each person in a role keeping a record of their decisions, behaviour and oversights; and to debrief participants by discussing the roles they have been playing.

The goals of the simulation were seen to be:-

(a) controlled introduction of all events and processes,

(b) balanced continuous learning on many levels in complementary roles with students of the other profession,

(c) equality of status as learners between students in both professions,

(d) non reliance on external factors such as the number of suitable cases, which might result in long inactive periods for one or both professions,

(e) the degree of responsibility and adaptatibility required of students could be realistic without being overwhelming,

(f) the unexpected effects not manifest in classroom teaching not only become apparent but can be directly experienced,

(g) the demonstration of less rational aspects of working with clients in a court setting. For example, the interpersonal problems arising for lawyers confronted with the non legal agendas of clients and the trainee counsellors having to provide explicit information for court decision making rather than directly working for reconciliation with their clients. Both groups inevitably experiencing clashes on professional goals,

(h) the use of briefing and debriefing to add another valuable learning dimension is not possible in real life.

However some forseen disadvantages must not be played down. These were:

(a) the lack of real consequences following suitable/unsuitable initiatives,

(b) the insulated emotional effects of role play may not provide sufficient challenge,

(c) the frustration levels can be artificially limited by umpires and/or kindly registrars, patient undemanding judges etc. and may not mirror reality,

(d) the lack of a necessity to understand the community context of all work with clients e.g. schools, work, other agencies, etc.,

(e) the possibility of concentrating on one process at a time which could reduce perception of the complexity of the event,

(f) the ultimate artificiality of simulation could be counter productive if over used, although it is illuminating, stimulating and at times exciting.

THE ORGANIZATION OF THE SIMULATION

The Family Court Simulation is a package of materials that can be used in a variety of ways to examine the roles and process of the court as it goes about its business. The planning team produced three videotapes that dramatised the processes involved in one case entitled 'In the Marriage of Yates ...', and another videotape entitled 'Family Court Process - Discussion Excerpts' which was produced to provide models of interviews and more importantly, practice in the auditing of the role-players. The remaining element was a manual which was used to provide materials for students to study the background of court process, and to provide the scenarios for simulation. The manual was also used to provide a key to behaviour for the professional umpires who provided feedback to each participant as they played out a role.

When used at the University of Melbourne some sections of the manual were duplicated and given to the students at the pre-simulation, briefing meeting. At this first meeting Part I of 'In the Marriage of Yates ...' was screened and then the discussion excerpts in the tape entitled 'Family Court Process - Discussion Excerpts', were screened to demonstrate briefing for a role player and to provide practice in auditing an interview. The tape has five segments:

1 Briefing for a role play
2 Solicitor/Client Interview #1
3 Counsellor/Client Interview
4 Solicitor/Client Interview #2
5 Debriefing after a role play

As each interview was screened, participants had to complete their auditing sheets. When students had viewed each practice interview, they were provided with sample sheets as examples to cross check their perceptions and notetaking skills. Each episode was also taken from the 'Yates' case and provided further background to interviewing techniques. At this first meeting which was a week before the actual simulation, students were also asked to rate their current knowledge about the Family Court process.

During the actual simulation the other two parts of 'In the Marriage of Yates ...' were shown as models of the process where required. Since participants were not ready for a court appearance until late in the first day - the tape showing a callover was deferred to a group meeting time prior to holding the first simulated court session. The simulation ran a total of three days in 1980 and three and a half in 1979. In each year approximately 50 students drawn equally from the senior years of the law and social work courses were split into four groups, with each group being assigned counselling and legal umpires. At the final plenary session students were asked again to self-rate their knowledge prior to and after the simulation, and to comment on other aspects of the simulation.

The umpires were professional lawyers, family court counsellors, and academic staff from each area. They kept the simulation moving, provided feedback on correct procedure and monitored the progress of each role-played case. They were made aware of all the elements of the simulation by pre-simulation briefing meetings. Their task was to ensure that each participant in a family scenario had the correct general instructions, his or her own special instructions on the particular character they were to play, and their stories 'straight' on basic facts and dates. The umpiring team consisted of three types of umpires. The first type consisted of the people who took roles i.e. the Registrar and the Director of Court Counselling. A court is administered by the Registrar and in the simulation this was one role which needed to be filled by somebody familiar with the functions (usually a Deputy Registrar). The Director of Court Counselling co-ordinated the counselling service. The second and third types were the counselling and legal umpires that worked with each case group.

Roles

The selection of participant roles depended upon the complexity of the scenario and how comprehensive the umpire wished to make the simulation. Many possible combinations within the Family Court were generated from the following lists -

> Professionals such as solicitors, barristers, court counsellors, filing staff, stenographers, secretaries, court reporters, orderlies, and administrative staff.
>
> Clients such as husband, wife, children, extended family members especially grandparents, friends, de factos, employers.

In the simulation there were a group of participants (called auditors) whose function it was to brief and debrief those actually playing roles. These auditors kept an account of the processes and interactions of the participants. Sometimes the briefing-debriefing functions were split from recording the interactions and interviews between participants, creating two types of auditors.

Scenarios

The scenarios were not worked out in detail but sufficient details were provided to set the scene. The intention of the simulation was to see how roles interact and investigate the outcomes of the interaction so that some material had to be provided by the student in role. The nature of the scenario varied but most contained aspects which could be classified as follows:

> legal, and examined points of law,
> psychosocial involving the exploration of the welfare of clients, e.g., what were the ramifications of the custody decision in a family and its extended group,
> between agencies where the problems of referral were important,
> between professionals, e.g., where the lawyer/court counsellor handling of the same case was explored.

Included in the manual were examples of affidavits and applications on the prescribed forms, which helped in the development of the cases. It was possible to develop scenarios which examined particular assumptions currently held about court operations. These scenarios were scrutinized by the umpiring team so that some opinion of their validity and the validity of conclusions that could be drawn from them could be teased out before they ran their course.

In addition to the full cases there were a series of short cases where applications for ex parte hearings were to be made, or where the matter was an undefended application for dissolution. They were useful for law student participants to provide them with extra work not necessarily involving other players. This helped to simulate the pressures of time in practice by adding additional case loads. In some instances supporting affidavits were provided, in others they needed to be prepared. It was necessary to change the dates given in the documents so as to retain the pressure of time for ex parte hearings.

Some of these cases were developed into long cases by developing the characters referred to in the application forms and affidavits. When using these materials we have found that participants in roles as solicitors and barristers have presented similar cases but changed a few facts, names, and dates. This obviated the need for many short cases to be prepared beforehand.

There were also a series of short cases where counselling had been ordered. They were useful for counselling students to provide them with extra work and increase the pressure of their role. Since each of the counselling cases required one or two clients, it also provided opportunities for participants not otherwise in role to examine the counsellors' intervention.

The locale required separate areas for plenary sessions, courts, court officers' chambers (judges, registrars, counsellors), solicitors chambers, a document area and typing desk. In many instances two chairs designating solicitors chambers sufficed, provided that other players in the same episode were not in earshot.

AUDITING

One of the major parts of a simulation was the feedback to those in a role by an auditor. The auditing system was designed to show how various actions have their effect on the situation under study. Auditing took place around episodes in a role and focused on wife-solicitor-counsellor, wife-husband-counsellor, or counsellor-solicitor interactions. The priorities for auditing were provided with definitions of behaviour in the guidelines for observation. The results of auditing were readily available to the participants in the debriefing sessions. Throughout the simulation the auditors regularly checked with the umpires if difficulties arose, so they could be sorted out rapidly. Video monitors were found helpful for auditing. A television camera in the interview room was relayed to a monitor in the plenary room, in each corner was placed a video monitor. This large room was separated from smaller offices by a corridor. Auditing was done at the monitors so that the interview was as natural as possible.

Debriefing

The major learning period of a simulation occurs in a well conducted debriefing. After each episode, that is when the participants were expected to act in their day to day roles for protracted periods of time they were debriefed even if they expected to be in role again later. This was a precaution to prevent people from transporting feelings and attitudes from the character into their everyday life. Each player was debriefed individually first before any group debriefing took place.

Once the personal debriefing had taken place two other forms of debriefing could be conducted. For convenience these have been called episode debriefing and plenary debriefing. The simulation was composed of separate episodes which were debriefed as they were completed. A court episode could consist of the interplay between judge, barristers and clients. A professional episode could involve the telephone conversation between a solicitor and counsellor.

Plenary debriefing took place when the whole group met such as at the end of each half-day, and a major debriefing occured at the end of the exercise. These sessions helped to keep everybody informed of progress and then the outcome of the various episodes could be formally shared.

OUTCOMES OF THE SIMULATION

The major foci in the Family Court Simulation were the professional/ client interaction, (the main roles being solicitor, barrister, court counsellor, husband, wife and children) and the interaction between professionals enabled an investigation of that interrelationship and the point of handover. When thoroughly identified with a role, the participants did find themselves behaving in ways which they would consider reprehensible under other circumstances. It is not uncommon to be accosted by participants who were aghast at their behaviour whilst in role. For example one law student said:

> While waiting to be interviewed by the counsellor, I felt frustration in not knowing what the other side was doing / my husband's attitude and my children's feelings, - almost constant anticipation and anxiety about what they were thinking and going through. I felt a real need for counselling both in this informative aspect and as a vehicle to rationalise my perception of the situation.

and again:

> At our group meeting towards the end of the day the conflict between professional roles emerged very strongly; the legal representatives feeling close to their clients' interests and the counsellor feeling tied to her professional duty to adequately report to the court. Again as a client I felt impatient and frustrated.

Students self-rating of learning

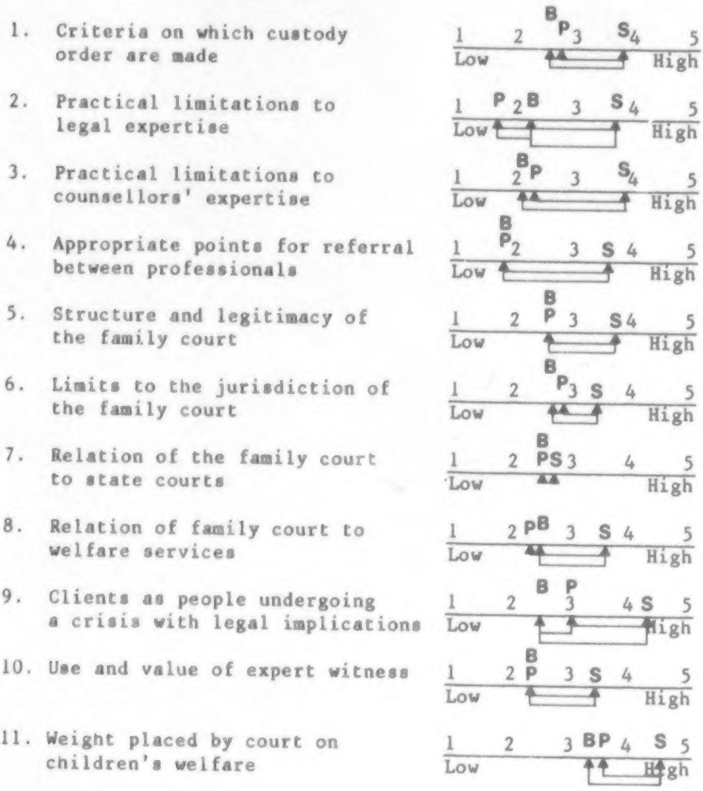
Students were asked to rate their knowledge about aspects of family law and the operation of the court in a questionnaire prior to the simulation at the briefing session, and at the end of the simulation. Although the simulation experience varied slightly between the two years, the pattern of responses to the following question was very similar.

> On each scale rate your knowledge about the area.
> P = at the briefing sessions,
> B = before the simulation (rated after the exercise), and
> S = after the simulation.

The links shown in Figure 1 were the significant differences between group means of the three ratings above. Shown are the 1980 responses (N=50) which mirrored those of the previous year in all areas except items 2 and 11. In 1979 students (N=47) did not significantly reassess their "practical limitations to legal expertise" (item 2) entry knowledge, i.e. the difference between the 'P' and 'B' ratings was not significant. Also, the last item (#11) was used only on the 1980 questionnaire. The consistent reassessment of prior knowledge in both years occurred on item 9, understanding clients as people undergoing a crisis with legal implications; this appeared to be the major strength of the whole exercise. The greatest changes in self ratings of knowledge occurred in items 2, 3, 4, and 9, confirming the objectives of the simulation.

By way of cross checking the self rating instrument it is important to note the responses to items 6 and 7 where the differences were smaller or not significant. These aspects were not covered by the simulation and in fact the small shift that occured in item 6 was due to the social work students rating the increase in their legal knowledge.

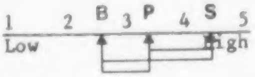
Figure 1: Overall results for 1980 group (Precise figures available from authors)



When the results for this question were analysed by professional group membership, the law students in 1980 reassessed their prior knowledge significantly higher on three items 2, 3 and 8. (Figure 2) This was in contrast to the 1979 law group which significantly reassessed item 3 significantly less after than before the simulation.

The 1980 law students reassessed their knowledge about the weight placed by the court on children's welfare and not item 9. In contrast, the 1979 law group reassessed the knowledge of people as clients.

9. Clients as people undergoing a crisis with legal implications



and the use and value of expert witness.

10. Use and value of expert witness

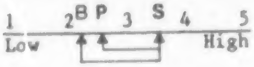
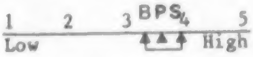
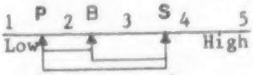


Figure 2: Law students results for 1980 group (Precise figures available from authors)

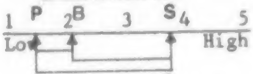
1. Criteria on which custody order are made



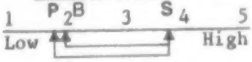
2. Practical limitations to legal expertise



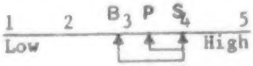
3. Practical limitations to counsellors' expertise



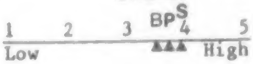
4. Appropriate points for referral between professionals



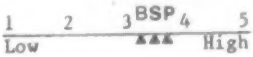
5. Structure and legitimacy of the family court



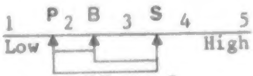
6. Limits to the jurisdiction of the family court



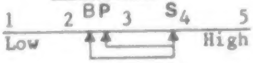
7. Relation of the family court to state courts



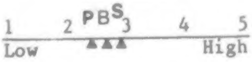
8. Relation of family court to welfare services



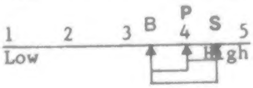
9. Clients as people undergoing a crisis with legal implications



10. Use and value of expert witness

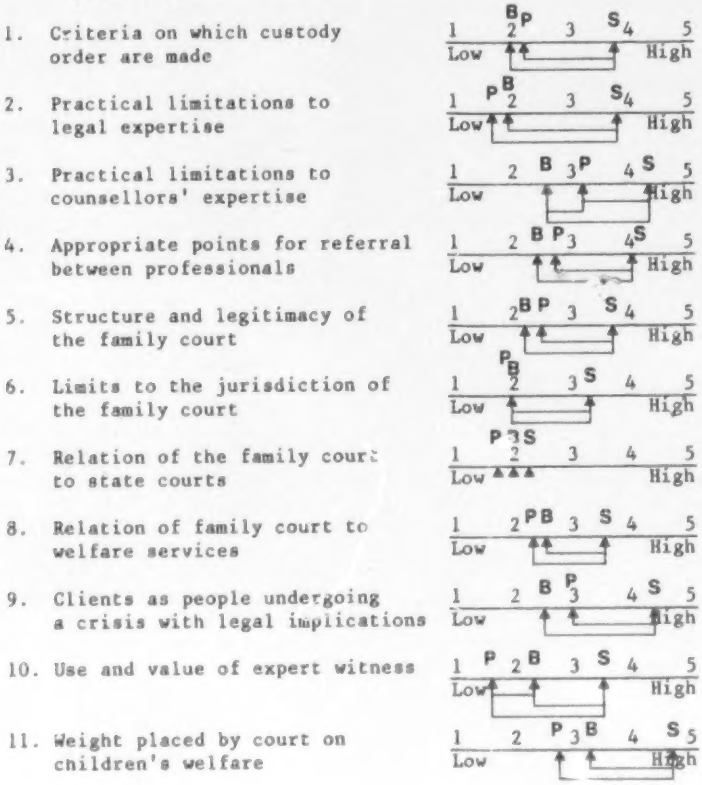


11. Weight placed by court on children's welfare



By contrast the responses for the 1980 Social Work students showed two significant reassessments of entry knowledge. (Items 3 and 10). The 1979 group did not reassess their prior assumptions. The reasons for these assessments were illuminated by the comments made in their journals by some of the counsellors. In the 1980 episodes the students commented that they felt more powerless in the legal system, and they did not experience as many instances of giving expert witness where their professional expertise was paramount. The umpires noted that less calling of expert witness occured 1980 than had occurred in the previous year. These subjective assessments highlight the evaluation problems faced by academic staff running a complex simulation.

Figure 3: Social work students results for 1980 group (Precise figures available from authors)



The second question asked before and after the simulation was:

> In a brief paragraph, summarize the function and operation of the family court.

To summarize the replies, both social work and law students appeared to have had a good understanding of the family court prior to the exercise. In the post-test responses, more "human" descriptions were used especially by law students. The importance of feelings and the rights of children were emphasized where previously the descriptions were in terms of legal aspects of custody and access.

Often before the simulation the function was described in terms of - "a federal court designed to facilitate divorce, custody, maintenance, property etc. disputes with minimum formality." After the simulation the same law student described the court's function "to decide family matters with the minimum formality and bitterness, whilst placing (at least in the custody cases) an overwhelming emphasis of the welfare of the children. It also places emphasis on pre-trial reconciliation with protracted and bitter litigation as a final resort." After the simulation law students were much more aware of the counsellors reconciliatory role.

Student evaluative comment

Pre-test Question 3: In a brief paragraph, outline what you expect to learn from the family court simulation.

Most students held the hope that they would learn about how the court operated and how the other professionals contributed to the running of the court. In particular, social work students were interested in finding out about the law, while law students were interested in legal procedures.

Post-test Question 3: In a brief paragraph, outline the strengths and weaknesses of the family court simulation as a method for learning about the court.

All students were asked to keep a diary of events and report their experiences either at the end of each day or the end of the simulation. From thses comments, the most often recurring was the recognition of the "non-legal" functions of the family court; e.g. court counsellors, and problems with the advocacy model. For most students, interviewing and being a client helped them realize the problems from a new perspective. Several also suggested changing professional roles in future simulations. Most realized that the court was primarily interested in the welfare of the child a fact that had escaped the notice of many law students prior to the simulation. Although one person reported the success of video feedback, this was not a major component of the success, probably because it was not used to its full extent. Most law students gained insights into the operation of the court by the routine procedures of filing and presentation of cases for pre-trial hearings and the need to approach client interviews with some organization while maintaining a sympathetic position. Many students commented upon their new appreciation of the feelings of being a client and having to rely upon professional expertise, "It struck me that a client in court who unless called, can only speak through his or her counsel would feel similarly frustrated and would really feel like interjecting in some form. You find yourself saying - That's a lie or what about you ..."

The following statements were the commonly agreed strengths of the simulation:

- as real as possible
- feedback between professionals led to greater understanding
- better understanding of clients feelings and needs led to an awareness of how to improve professional counselling or interviewing skills
- added context to textbook learning "I learnt more than lectures on the area"
- increased awareness of the constraints of the Family Court system from different points of view
- better able to let clients know what to expect when divorce or separation is imminent and the experiences to be expected
- awareness of different roles of the counsellors (confidential counselling vs family reports) were important for some of the law students
- a crystallization of the theoretical ideas raised in lectures for both law and social work students
- the pressure was found to be frustrating but most recognized that real life might be like that

Student evaluations were not uncritical but most were extremely positive. Four or five students commented on the initial confusion of the first day. In 1979, the introduction to the whole simulation was poor and for some law students the introduction to court procedure came too late. In addition, only two social work students mentioned they had problems with auditing. More law students felt that the auditing was not required. However, two or three law students requested more debriefing of solicitors on their presentation and performance with the law. This appeared to be a breakdown in the auditors providing sufficient feedback to the solicitors.

In the 1979 group, there still remained at the end of the simulation a feeling that each professional group did not know the others' complete role. Other problems with playing roles were found with the children, at least one student felt that they were too contrived.

Some concern was voiced about quiet spots, some suggested case materials be handed out in advance to reduce the time required to get into role on the first day. The brevity of the simulation meant that insufficient time was available to explore all possible roles.

The following statements represent some commonly agreed weaknesses:

- need for well briefed umpires with real life experience
- need time to practise all roles (especially counselling if a social work student)
- need a structured and reliable opportunity to get feedback and debriefing ("if it is not done well it is difficult to objectively look at the role you have played".)
- sometimes the structure of what was to happen next was not entirely clear
- many students wanted more time to further investigate some of their roles and procedures

Evaluation of the role of umpires

All information about the present state of the exercise was monitored by the umpiring team. In particular, time was kept under close scrutiny. Often decisions were made about scenarios which did not appear to be working in their developed form. For example, all participants needed to know the time at which they were assumed to be functioning. The strategies of the players depended on synchronization. Necessary changes were made by the umpiring team.

Sometimes processes were repetitive, and had no major effect on results, in these cases the umpiring team intervened to speed action, and in some cases the scenarios were changed to examine a specific legal or social problem. Umpire reactions emphasized the need for constant vigilance to avoid unproductive snags in the flow of activities due to a participant who is unsure of the next step, or some unforseen legal blocks. They also underlined the value of adequate briefing and debriefing for participants.

The following points were found to determine the effectiveness of the umpires used in the simulation:

- training was deemed essential and some umpires needed more time to plan between episodes
- there was a need to keep the simulation moving, and reinforce learning by debriefing episodes
- umpires need to understand how things work in practice
- umpires need to be aware of their power to manipulate to simulation and provide structure if required

By way of evaluation the umprires considered that:

- more dramatic sequences can deflect students from their own task and give them the impression that their own learning is less important than the learning they provide for others.

- some groups and individuals get bogged down and experience impatience as a product of the simulation, rather than the court procedures themselves.

- some cases should be allowed to be worked through although this can upset the balance of a whole programme. Artificial termination at times reduces the learning potential of the case.

- some students demonstrated incredible initiative and professional skill while others who were originally less able did experience great development. Unexpected personal confrontation between professions which although unplanned can reflect real professional divisions not previously anticipated e.g. haste to get a case to court to advantage a client against a counsellors wish to allow time for conciliation.

- over emphasis on the Court by law students, an impression that the simulation was more geared to legal techniques on the part of social work students, and to interpersonal factors on the part of law students.

Conclusions

Perhaps the best summary was that provided by a social work student.

> I felt that one of the most apparent results of this experience was the depth of the lack of understanding between the two professions and of the existing mutual distrust. The law students have been trained to think logically and to base their actions purely on factual evidence; contrary to this approach, the social work students seem inclined to place a great deal of importance on implicit, rather than explicit, evidence. During the simulation exercise, this led them to frequently ignore the facts as presented in the scenarios. The law students seemed motivated by concerns of time and of expense that might be incurred by their clients should action be deferred while counselling (which they often felt unproductive) could be provided.

There was ample challenge for students in a simulation without the need to write in issues of complex theory or problems of a substantive nature. However, with careful preparation of scenarios, umpires who were fully conversant with the issues and sufficient time there is no reason why legal theory cannot be reinforced in the simulation exercise at the same time as practical technique. Although other jurisdictions could be used as a substitute, the procedures of the Family Court and the cooperation of the Bench and Registry at Melbourne made it a fruitful experience. The Family Court is the focus for the relationship between two quite differently trained and oriented professional groups; barristers and solicitors appearing on behalf of lay clients and family court counsellors acting as officers of the Family Court itself. The simulation experience gave each group valuable insights into the objectives and constraints of the other. Overall, the simulation provided:

1. Different perspectives of the law and its clients,
2. Referral and sharing in the resolution of problems between counsellor and solicitor,
3. Experience in the mechanics of family court practice,
4. Awareness of the importance of the child in any dispute.

Some failings were also noted, such as the lack of sufficient case loads for the counsellors, the confusion over what was happening from time to time and the poor auditing which resulted in insufficient feedback and some students not really getting out of roles. The information collected (especially videotapes) was not fully used to provide feedback to the paricipants. However, in fairness the simulation did force the student to generate their own involvement in the events and to take the responsibility for his or her own learning.

In summary, the simulation as a teaching strategy has provided reinforcement and concrete experience for the theoretical aspects of both professional courses. The additional bonus of having to deal with another profession in a 'safe' environment did enable the students to examine modes of action and basic assumptions about their roles and personal modes of operation.

Acknowledgement

This study can be seen as the culmination of the work of many people and the successful trialling of the materials. Over the past two years the Law School, Social Studies Department and Centre for the Study for Higher Education have co-operatively developed simulation materials ably assisted by practitioners from the Law and Counselling professions, in particular, Mr Don McKenzie, Principal Court Counsellor, Family Court of Australia. Mrs Claire White ably assisted the authors with the analysis of the diary and questionnaire responses.

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TEACHING QUALITATIVE ENGINEERING SKILLS

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The use of games in Civil Engineering undergraduate courses is a well established practice, particularly in areas relating to, for example, construction planning and management. Cullingford, et. al. (1979) discusses the use of computer based games of this nature. The vast majority of games of this type involve the student in role-playing and simulation situations.

Structural engineering is a specialized field within Civil Engineering which has been traditionally intensely mathematically based. In the teaching of structural engineering, if published work is used as a guide, very little use has been made of game techniques. This in itself if rather surprising as many of the mathematical concepts lend themselves to a game approach. Cowan (1974) describes a simple but effective game for use in structural engineering studies. This game is not primarily mathematically based but its use provides important experience which will aid the student to cope with the changes taking place in this field.

The advent of the digital computer and its subsequent use as an aid for analysis the design has highlighted the need for a change in the emphasis of teaching structural engineering. This change will require structural designers to become more proficient at tasks such as mathematical modelling and more adept at checking the results of computer analysis. Francis (1980) refers to the need for a greater emphasis to be placed on teaching how structures behave under load than on teaching methods of analysis. The need for change is by no means universally acknowledged and is a long way from being implemented in most undergraduate courses. However, a better understanding of how a structure behaves under load is essential for engineers involved in computer analysis and design.

In summary, the change will require more emphasis to be placed on the teaching of qualitative understanding of the behaviour of structures and less on the mathematical techniques of analysis.

This article describes attempts made at Caulfield Institute of Technology to engender within students these new skills using a games approach.

AIMS:

The major thrust of each of the games described in this article is centred on the need to teach towards a better understanding of structural behaviour as discussed in the introduction. Students who graduate in Civil Engineering and who specialize in structural design are generally required to work with computers. The computer will perform the numerical tasks of analysis but the Engineer will maintain full responsibility for the correctness of the output.

The Engineer will of course be required to supply input into the computer. This will, for example, take the form of a known configuration of the structure and a known loading system. A large proportion of the output will be in numerical form. However, the trend in output is towards an increasing use of graphical representation. These games, in the main, are aimed at the interpretation of that graphical output.

The major aim is thus to enable the student to build up confidence and competence in establishing conceptual relationships between the known input and the represented output. These qualitative skills are thus the prime function of the games.

In addition, the gamesalso place some emphasis on the use of quantitative skills. Relative magnitudes in some cases need to be assessed and by this means the student is forced, or rather encouraged, to extend his skills in mental arithmetic and approximate analysis techniques.

In summary, it could be said that the games are to assist the students to become responsible computer users. Computer users who will as a matter of routine, set about the essential task of carrying out whatever checks are considered appropriate to ensure the correctness of the computer output.

ELEMENTS OF A GAME:

When preparing a teaching programme in a games format to meet the aims described, consideration must be given to those features which the game should incorporate. The major elements of these games are seen to be:

1. The game must involve the student. It must be more than a simple demonstration. The students must play an active part in reaching a conclusion.
2. It must be directly relevant to coursework. The game must be directly related to a particular topic of the course of study otherwise the incentive to become involved is considerably reduced.
3. The game must be interesting and challenging so that students will be motivated to participate in the learning situation.
4. Instant diagnosis must be provided to reinforce the validity of a move and to build up confidence for subsequent postulates.
5. A minimum of staff involvement is desired. The game should thus be self checking.

6. Ample variations of a particular problem area should be built in to ensure adequate use of the game.

7. Being a game, an element of competition is essential which however, should be at all times subservient to the learning objective.

The games which will be described incorporate most of these features to varying degrees.

The games do not rely on simulation or role play situations. Instead they provide a format in which a simple judgemental decision must be made by opposing players who then score according to the correctness or otherwise of their moves.

STRAIN GAUGES:

Two of the games described use strain gauges to detect and record various effects monitored during play. Before describing changes of stress at a particular point in a system under load. They consist of a small wire which is bonded to the material. Groups of gauges are activated by electrical current and their output recorded by sensitive instruments. As the body is loaded, so the length of the wires of the gauges change by minute amounts. These changes in length cause a change in resistence of the wires and thus a change in output from the gauges. The amount of this change in electrical output can be directly calibrated to correspond to the change in stress at the location of the gauges.

In research applications, a high degree of accuracy can be obtained by the gauges in conjunction with sophisticated and expensive equipment. The gauges themselves however, are cheap to buy and easy to apply and use.

For the games to be described, accuracy is not a prime requirement and consequently, the gauges can be used in association with less expensive ancillary equipment. Some of the C.I.T. games use equipment built for moderately small sums by technical staff.

Strain gauges, although used primarily in the Applied Sciences, could be used as detection devices in other areas without requiring significant training of the personnel involved. Non-science based readers requiring a system of detection might consider strain gauges to meet their needs.

TRUSS GAME:

A truss is a structural system that carries load by the interaction of a series of members arranged in a triangulated format. Under load, some of the members will experience a tensile effect whilst others will be compressed. Under certain loads, it is even possible that some members, null members, will not experience any change of load at all.

Trusses analysed by computer will provide as output to the user, the magnitude of induced force in each member, together with the sense of that force, whether tension compression or null effect. These results must be checked by the user to ensure that they are consistent with the load carried by the truss. In practice, the load effects and their senses tend to conform to a definite pattern. For example, a simple truss railway bridge will under the weight of a train, experience compressive effects in the upper members, tensile in the lower members.

The objective of the truss game is to provide experience in establishing this applied load - member effect relationship.

The game which is played by two students, proceeds as follows. One student constructs a truss using as a guideline a series of trusses listed in a user's handbook. The truss is made from standard components which are simply and quickly joined by spikes at the junctions. The truss lies flat on a table to which it is attached at certain points only. These points correspond to the support points of a real life truss. One member of the truss has strain gauges in order to detect loading effects. These gauges are in turn connected to an analogue meter. A tensile effect in the member will cause the meter needle to move to one side, compression the other. The student can locate the gauged member in place of any selected normal member of the truss.

The game takes the form of a 'tug-of-war'. One student will endeavour to load the truss in such a way as to produce tensile effects in the strain gauged member. His opponent in turn will try for compressive effects. Load is applied by the push of a finger or by suspending a labartory weight, attached by string to the truss, over the rounded edge of table. Using the weights, if correct moves are made, the needle will always alternate about the central position as students in turn make their moves. An incorrect move will also be readily obvious by the movement of the needle. The game is thus totally automated: no reference to staff is necessary for checking purposes.

As the game proceeds the pattern of load magnitude and sense variations within that truss becomes obvious, and students' knowledge of this feature is built up and reinforced as the game procedes. Each game has a limited number of moves but further games can be quickly generated by changing the location of the gauged member or the points at which the truss is supported. Alternatively, a truss of another general outline can be constructed in a few minutes. In this manner, a large number of unique situations can be generated by the students.

Students score by some agreed method, generally on the basis of 'make a mistake, **lose** a point'.

The system is so designed that many variations can be made to the basic method as described. It is however, not considered appropriate to mention all the options in this article.

The truss game kit in use at C.I.T. has sufficient members to permit six games (twelve students) to be played simultaneously. Further details of the system and construction of the kit are contained in a user's manual, (Ref. 6).

FRAME GAME:

A frame is a structurewhich carries load mainly by bending effects as opposed to the axial effects of a truss. The bending effects vary in intensity along the length of the member. It is customary for engineers to plot this variation of intensity and produce what is referred to as a bending moment diagram.

Many computer programmes depict graphically these diagrams and in so doing enable the engineer to check that the characteristics of the diagram are consistent with the known load input. It is this relationship between load and bending moment diagram tha the frame game is designed to reinforce.

Once again, the game is strain gauge based. As with the truss game, two students play at one time. They are required to predict the variations of the bending moments of a given model frame or beam under a known load. Between two points, will the bending moment increase, decrease or remain constant? The players take turns to make this prediction. Having stated what they believe will be the change in bending moment between the points under consideration, a press of a button will cause the true diagram to be plotted on a laboratory X-Y recorder. Their prediction is thus instantly checked. This plot is facilitated by specially designed electronic equipment which is interfaced between the strain gauges and the X-Y recorder.

As the total diagram is being produced piece-wise, the players identify trends as the moves proceed. In this way, guidance is automatically provided for subsequent moves and confidence is gained accordingly. As with the truss game, confirmation of their prediction is instant and automatic. This instant feedback is of course an essential learning aspect of the system. Once again, students score on the basis of errors made by opponents.

At this stage, the instrumentation of the frame game is more involved than that of the truss game. More development work is being carried out to make this system readily available at all times for unsupervised use. The ability to quickly change the supports of the model frame or to vary the location of the applied load is however maintained, ensuring a readily available supply of unique games for the players.

BENDING MOMENT SHEAR FORCE GAMES:

In addition to bending moments, a further loading effect is shear force. The variations in shear force can also be plotted to produce a shear force diagram. There is a definite relationship between the load and the variation of the two loading effects. For example, a point load will produce a 'step' in the shear force diagram and a 'kink' in the bending moment diagram. These features can be used once again to check the relationship between computer input and output.

Two forms of game using these diagrams are in use at C.I.T.. One is a manual system, the other computer based.

The manual version uses the well known system of cards. A problem in the form of a sketch of a loaded beam is printed on one side, the solution, the two effect diagram on the other.

As with the other games, two students play at one time. A card is selected and one student is then required to construct the shear diagram, the other the bending moment diagram. The construction takes place on a work-board on which the card rests. The work area of the board consists of a white grid area with a series of peg holes at grid points. Two pieces of black 'hat' elastic are also located on this grid area. The diagrams can thus be constructed by deflecting the elastic to the desired shape and maintaining it in the assumed position by pegs. Players can, and should, critically appraise their proposal and that of their opponent before turning the card for instant verification. Scoring is again on the basis of losing points for errors made.

A large number of cards are available which are presented in carefully prepared graded sets so that players can proceed from simple to more difficult problems as their competence increases. As can be seen, the system has the instant checking feature which immediately reinforces the players' understanding of the concepts involved.

Although designed to be used by two players, this system has proved popular for individual use. Being relatively inexpensive, multiple sets can readily be provided for use by a large number of students.

The computer based version of this game utilizes the graphics capability of the Apple II desk top computer. It relies heavily for its success on the obvious addiction young people have for the variety of computer games now available on the consumer market.

A loaded beam is depicted on the V.D.U. screen. The players using a given code indicated via the keyboard whether the load effect should increase or decrease intensity between two points. Their postulate is instantly checked by the computer and if correct, the diagram is constructed on the screen between the two points. The other player makes the next move using the same approach. The complete diagram is thus built up in a stepwise manner enabling trends to be established as the game proceeds. Scoring is carried out automatically and depicted on the screen. As with the manual version, students can play this game on their own.

This system as used at C.I.T. is programmed to give a selection of 84 beams from which students select 12 for any one game. They may select the type of beam or loading to be used and also the degree of difficulty of the problems. Scoring can also take several forms. As such, the system provides a wide variety of play alternatives and interest is maintained accordingly.

An excellent feature of this computer-based approach is that diagnostic sessions can be conducted. Using a slightly modified programme, a record can be made of incorrect moves when particular beam sets are used in turn by groups of students. In this manner, moves made by students which indicate a lack of understanding can be detected and remedial work given in these areas.

VALIDATION:

To date, very little work has been attempted to measure in any way the effectiveness of the systems. This is mainly due to the fact that these systems have been used only with first year students. As stated, the main objective of the games is to assist the students to become better equipped to moderate computer output. This intensive computer work does not occur till the fourth year of the course. Students exposed to the first use of some of these methods have not yet reached their final year. One concern of course is this delay between initial instruction and intensive use of the skills acquired. Steps are being taken to reinforce the learning benefit in subsequent years.

The use of the methods has however proved very popular with the students and apart from any other benefit, the motivation provided by these games has proved well worth the effort. As the games are used in conjunction with the teaching of a particular topic, there is little doubt that they have assisted in gaining a better understanding at that time.

CONCLUSION:

An attempt has been made to describe, in non-technical language, several games methods of teaching some important skills required by structural engineers. Papers by the author (1980 and 1981) provide more details for those particularly interested in this important aspect of engineering.

Apart from any other benefits of the games methods, their use has proved to be a welcome relief from other more arduous teaching methods. It is hoped in time, to be able to show that, in addition to being palatable to students, these methods are equally or more effective than other systems currently in use.

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CONCEPT FORMATION IN ENGINEERING MECHANICS

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EXPLANATION

This paper describes the first stages of an investigation into the formation of concepts by students of engineering mechanics. It investigates the role which "algorithms" (i.e. procedures, standard methods or typed solutions) may have in the development and acquisition of the concepts involved.

This paper consists of two sections. The first describes the teaching and learning situation within which the research was carried out and concentrates on the issues which have emerged. The second section describes an experiment which has already been undertaken. Its evaluation sets the basis for further similar investigations.

PART ONE

The Teaching and Learning Situation

First year students of civil engineering at Heriot-Watt University, Edinburgh study maths, physics and chemistry in conventional situations involving lectures, tutorials and laboratories. Their civil engineering subjects, which occupy one third of the curriculum, are almost entirely resource-based. During the past 10 years the department has developed, mainly due to the efforts of John Cowan, a Learning Unit and much has been written on its successful operation (Cowan 1975). Such system offers a range of individualised and group learning situations, where the main source of instruction is some form of learning resource materials, normally an audio tape. The students do not, of course, sit and listen to audio tapes for a third of the working week. Resource-based activities are initiated or supported by resource materials, but in addition also entails a strong component of individual working. These individual work periods, although not directly resource-based are an essential component of the overall resource-based learning.

The Learning Unit, for certain sections of the course, may be offering the student as many as 12 alternative routes through the subject area. It encourages the student to assess his own progress using self-assessment resource materials. Thereby it can reasonably claim to be offering the learner a fair measure of freedom in pace, approach, choice of content and assessment. The learning situations are by no means entirely individual. In many cases, and particularly for initial instruction and for appraisal of prepared work, small group activities are preferred. It must be emphasised that many of these do not involve the use of audio or video tapes but rely instead on the simplest of all resource materials, the printed page.

The development of resource-based learning has had three important consequences. The first of these has been the release of the teacher from routine and repetitive tasks, so that he can be used more constructively in one-to-one tutorial contacts with individual students. The second has been the development of a very wide range of optional materials, in an attempt to cater for the individuality of the students. The final feature has been the development of a research programme into many aspects of the learning which occurs within the unit.

The Teachers' Involvement in Research

One of the most common criticisms to be levelled against this type of resource-based learning, is that it represents a "spoon-feeding" situation, in which rote learning becomes a dominant aspect, as opposed to a genuine state of higher education, where formation and transmission of concepts are of paramount importance. Nowhere would this criticism seem likely to be more valid than in first year engineering topics of a mathematical nature, where the syllabus is strikingly linear and where the procedures to be followed in solving the different types of problems which arise are clearcut, and few in number. Therefore John Cowan, in his teaching capacity, has always been concerned about the possibility of falling into this undesirable pitfall and has tried to structure his teaching and tutorial situations accordingly.

When the author joined the department in early 1980, a research programme was begun to investigate possible ways of enhancing the effectiveness of concept learning. In a preliminary activity the cognitive structure of the first year subject "structures 1" was investigated and classified according to Davies (1971). It was found to be on the low-middle cognitive domain. On the low-level instructions were mainly directed at the teaching of procedures while at the other end of the scale the teaching of the fundamental concept of equilibrium permeated most of the instructional tasks. The importance of this concept was highlighted by John Cowan.

> "To understand "Structures" he (the student) has to appreciate that every structure which is statically determinate is subject to the equations, or rather the conditions, of equilibrium. All that we do in structures is simply an attempt to work out the requirement, again and again, in different ways, in the common situations which occur for the structural engineer. The calculations of reactions for determinate structures, the calculation of bending moments and shears (which are simply convenient labels for an intermediate stage in an equilibrium calculation), the determination of the forces in the members of pin-jointed frames, and even the use of these calculations in deriving influence lines, can all be seen as an application of the conditions of equilibrium in varying contexts."

Accordingly the behavioural objectives of "Structures 1" were a mixture of low cognitive goals (define state etc.), and higher ones in which it was hoped that the student would analyse, criticise and be able to apply his knowledge in novel situations.

Because of the nature of this course most higher level learning occurred in (or after) the tutorials during the problem-solving situation.[1] The researchers in their role as tutors made a conscious effort to observe students reaction and to keep a systematic and objective record of the nature of difficulties encountered by students.[2]

The Issues

After several weeks of observations accompanied by a conscious reflection on the students reaction, it was observed that the procedural help given to students prior to the problem-solving situation was in general not followed. A typical situation would involve a student who was having difficulties. The tutor would inevitably find that the student had not been following through the procedure or did not identify the steps in the procedure which were not properly understood. Reasons for this behaviour and evidence of its occurrence is summarized in Table 1.

In general it was found that objections to the suggested procedures were more of an unconscious than a conscious nature. However, there were some students who did think and talk and question in terms of a procedure. Practically all of them were able students, who now had a firm grasp of the topic concerned, and who were either discussing refinements in it or had encountered an isolated difficulty in a particular problem. These findings have highlighted some important issues, they are:

> Does the ability to formulate a procedure in ones own mind help to gain better understanding of the concepts involved?
>
> Is an algorithm presented by a "teacher" a transient stage in learning coming somewhere between the assimilation of concepts and the formulation of procedure in ones own terms?

The substance of these questions lies at the root of a more fundamental education issue: the way in which humans learn. This is a complex process which is concerned with the organisation of memory, language, selective perception, encoding, storing, retrieving and responding (Gagné 1977), (Novak 1977).

The literature is rich in findings of this nature, however, a number of controversies still remain. Controversies not only related to the validity of these findings (Lawless 1979), but also related to their usefulness in realistic learning situations (Elton & Laurillard 1979). Parlett & Hamilton (1976) suggest that a meaningful evaluation of learning should take into account all aspects of learning, and should take place within the learning situation.

In the light of these considerations, to further investigate the role of algorithms (procedures) in relation to the acquisition of concepts, it was decided to set up alternative learning packages. In the alternative packages, which are to be taught in parallel with the existing ones, the students would be given the opportunity of developing their own procedure.

PART TWO

The Experiment

A first trial run was organised for the first lesson of the academic year 1980-81. The aim of this trial experiment was mainly to sharpen up the mode of enquiry and to define further the direction of the investigation. The topic[3] was unknown to the students as were the teaching methods, the style of tutorial, the mode of questioning and the style of testing. All factors which may influence the quality of learning. (Marton & Säljö 1976).

The students were divided into two groups of approximately 40 students randomly selected. One group (38 students) was given the conventional package (the elements of which are shown in appendix B) while the other (37 students) experienced the alternative approach. The alternative instruction was prepared by the author. It differed from the conventional one in so far as the procedure required was not explicitly itemised. Instead the key points were illustrated by examples.

In the tutorial of the alternative package students were only given a summary sheet of the instructions. Under the supervision of the author they were asked to develop their own procedure and solve the tutorial problems. The same problems were also given to the other group under the normal procedures.[1] In both tutorials, written records of the nature of difficulties encountered by students were kept.[2] The main points to emerge were:

(a) Both groups showed difficulties in assimilating some concepts related to individual steps of the procedures.

(b) The conventional group had encountered no difficulties in applying the procedure. However, some students questioned the usefulness of the exercise.

(c) In the alternative group it was found that many questions were directed towards the formulation of the procedure. Not all students arrived at a meaningful conclusion.

The Test

Two days later both groups were tested. The test results, shown in Table 2, can be explained by the following considerations.

The cognitive objectives tested by each question according to Bloom Taxonomy (Bloom 1956) are shown in the bar graph of Table 3. They clearly show that, in theory anyway, the task of the alternative group was of a higher cognitive level. If we now plot the results in order of increasing cognitive level we would expect a graph approximating a straight line. Table 4 illustrates these trends with an obvious striking exception. The point plot for question 3 in the conventional group is nowhere near the straight line, indicating that the analysis of the objectives tested by question 3 is highly inaccurate. It seems to show that most students opted for a high level cognitive process rather than a simple regurgitation of formula. If this was the case then, the point plot of question 3 should be placed at the other end of the graph, thus fitting nicely near the line of increasing cognitive activity.

The following conclusions can now be drawn:

(1) The students in the conventional group have functioned better from the outset especially in those questions where a straight application of the method was required (i.e. for low cognitive tasks).

(2) For higher cognitive tasks the gap in performance between the two groups is reduced indicating that all students found a similar degree of difficulties in gathering their thoughts together in the circumstances of the test.

The fact that in general the alternative group did not perform better, may indicate lower quality of the instructions, (after all the conventional package was prepared by a more experienced teacher and had experienced years of refinement) lower efficiency of the strategy used or that the strategy wasn't given enough time to work.

(3) The result of question 3 indicates that the students of the conventional group prefer to work from first principles rather than memorize the formula given.

It now remained to be seen which students had acquired a finer grasp of the concept involved: a somewhat ambitious task. It has been argued that qualitative understanding is evidence of deeper conceptual mastery (Cowan 1980). The result of a search for "good qualitative understanding" displayed in the form of correct answers jotted down without calculations is summarised in Table 5. It indicates that a high proportion of successful students from either group displayed "good qualitative understanding". A similar investigation for unsuccessful students could not be carried out because in general unsuccessful students, regardless of their group, tended not to follow consistently a procedural method.

CONCLUSION

The test analysis on its own cannot be used conclusively, however, taken together with the experiences so far undertaken it has been useful in highlighting weaknesses in the method of enquiry.

The following recommendations are made for future investigations:

(1) To guarantee uniformity of quality the two lessons should be prepared and given by the same person.

(2) To facilitate meaningful comparisons the two learning experiences should be made up of similar cognitive tasks.[4]

(3) Devise a more open ended test to discern in particular these aspects:

- (a) consistency of method amongst successful learners;
- (b) that success is not entirely related to ability;
- (c) the degree of understanding of each concept in isolation.

(4) Improve method of detecting difficulties during the learning situation (tutorials etc.), to detect maturity and depth of mental activities, (type of questions etc.).

An Optimistic Note

A few months later the investigators made a conscious appraisal of the students reaction and behaviour. It was felt that the type of questioning expressed by the students had been of a higher "quality" than at the same time the previous year. It is hoped this was a direct result of the investigators awareness of the role that procedures may play in the formation of concepts which in turn resulted in a more enlightened tutorial approach.

ACKNOWLEDGEMENTS

I am grateful to Dr. John Cowan for the invaluable contribution and guidance given throughout the investigation which inspired the writing of this paper.

Many thanks also to Geoff Smith, senior lecturer at Caulfield Institute of Technology (Melbourne) for his many helpful comments.

FOOTNOTES

1. The tutorials comprising of approximately 14 students at a time were held in the Learning Unit immediately after the instructions. Available to students were the following aids: A procedural sheet, a short summary of the instructions (tape), a tape providing hints for the solution of the tutorial problems and of course, a tutor.

2. This task was facilitated by using a D.D.S. (Difficulties Detection Sheet) prepared by Rizzo prior to the tutorials. (See Appendix A).

3. "Determinacy" of pin-jointed beams.

4. In our case this could have been done by introducing the procedure to the discovery learning group say, at the end of the tutorial or by increasing the time interval between the tutorial and the test.

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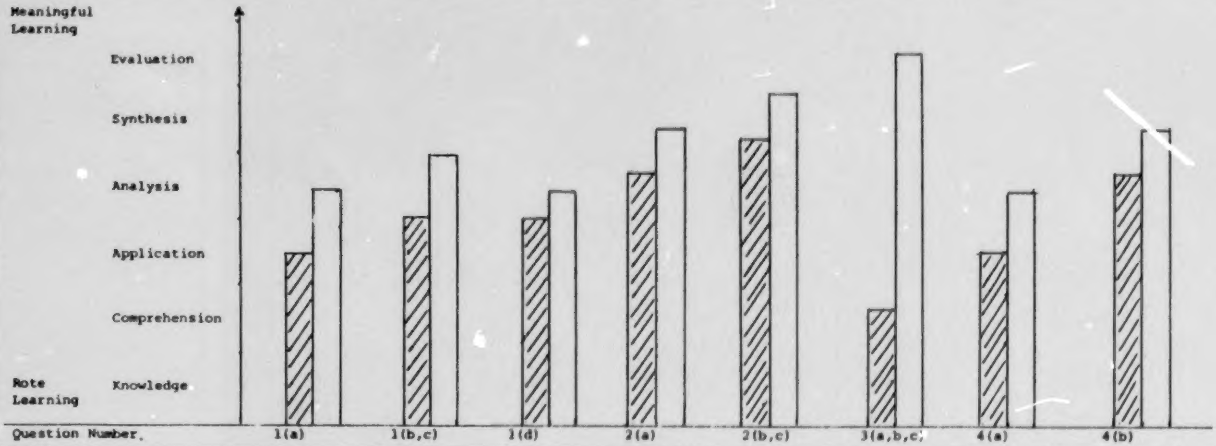
TABLE 1 : List of reasons for the rejection of procedural instructions during tutorials and supporting circumstancial evidence.

STATEMENT	EVIDENCE
1. The algorithm was overlooked in the instructions.	Some students were unaware that the procedure to determine the direction of forces in a member of a pin-jointed frame was given in the instruction.
2. The algorithm was believed irrelevant.	Attempts were made to sketch Influence Lines graphs before calculating values.
3. Steps in which unfamiliar words appeared were replaced or discarded.	The term "unwanted member" in the pin-jointed frames algorithm was often rejected.
4. Steps in which unknown or difficult concepts were used were changed or ignored.	The concept of "restraints" was a typical example.

TABLE 2 : Test Results

Question Number	Percentage of correct responses for the "Conventional Group"	Percentage of correct responses for the "Alternative Group"	Remarks on method of marking
1 (a,b,c,d)	87%	54%	3 out of 4 correct answers was considered a correct response.
2 (a,b,c,)	63%	43%	Correct answers to all 3 parts was considered a correct response.
3 (a,b,c,)	34%	38%	Correct answers to all 3 parts consistent with the answers of Q.2 (even if Q.2 was wrong) was considered a correct response.
4 (a,b)	58%	48%	Correct answers to both parts was considered a correct response.
5	-	-	This question was not marked because students did not attempt it due to lack of time
6	-	-	As above.

TABLE 3 : Graphical representation of cognitive level of test questions for each group



Question Number.	1(a)	1(b,c)	1(d)	2(a)	2(b,c)	3(a,b,c)	4(a)	4(b)
▨ Cognitive task required by students in the Conventional Group.	Application of method in simple situation	Application of method and discrimination of knowledge.	Application of method in simple novel situation.	Analysis of method.	Analysis of a more complex method.	Comprehension of previous question and knowledge of formula.	Application of method with guiding hint.	Analysis and application of method with guiding hint.
% of correct responses.	92%	72%	82%	68%	42%	34%	87%	60%
☐ Cognitive task required by students in the Alternative Group.	Analysis & application of method in simple situation.	Analysis & application of method & discrimination of knowledge.	Analysis & application of method in simple novel situation.	Synthesis of method facilitated by some tutorial guidance.	Synthesis of a more complex method facilitated by some tutorial guidance.	Evaluation & synthesis facilitated by some tutorial guidance.	Application of self derived method with guiding hint.	Analysis of situation in which method doesn't work with guided hint.
% of correct responses.	74%	52%	67%	62%	44%	38%	63%	48%

TABLE 4 : Plot of % of correct responses in order of increasing cognitive task

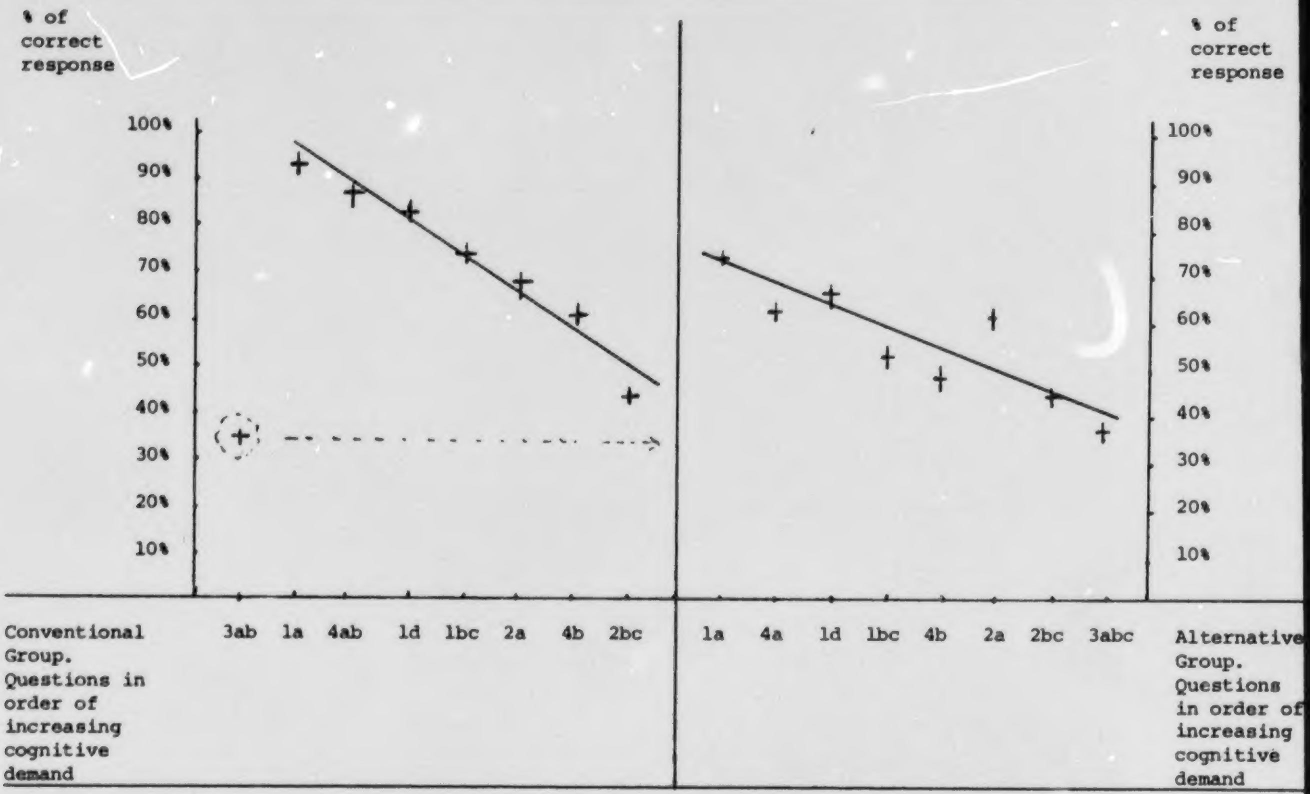


TABLE 5 : Percentage of successful students displaying good qualitative understanding

	% of successful students (i.e. students who correctly answered Q1, 2 and 3)	% of successful students who also display good qualitative understanding (i.e. % of successful students who answered Q1. a, b, c, d, without any apparent calculation)
Conventional Group	29%	72%
Alternative Group	22%	75%

TEACHING YOUR DISCIPLINE TO STUDENTS OF ANOTHER

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INTRODUCTION

This paper is intended as a background paper for a workshop on service teaching. It raises some issues which are of particular relevance to service teaching and describes some of my own approaches to the service teaching in which I have been involved.

Service teaching suffers especially from the syndrome common in higher education which puts subject content and skill in dealing with the subject matter before teaching skills. In such a paradigm service teaching is very much a poor relation. As a lawyer the social work students I teach are not interested in the intricacies of constitutional sovereignty or in the finer points of negligent misstatement. The law content which I teach these students is necessarily basic and of day to day relevance to their places of work. The challenge lies in presenting this material in a way which is appropriate and interesting. It requires that I re-think the approach to legal studies which I would normally use with law degree students. It throws my teaching practice into sharp relief as I am off my traditional ground and the traditional expectations of law students. The ways we teach in our own discipline tend to be determined at least in part by the way we were taught ourselves. This is not to say that a good shake-up and fresh look at teaching in our own disciplines would not be beneficial. The issue is however confronted more directly in service teaching.

Service teaching does provide opportunities to operate outside our own departments to meet teachers and students from other disciplines and, to benefit from that discipline's perspective on our own.

So this paper is an attempt to initiate a discussion about teaching practice with particular relevance to service teaching but no doubt with a spill-over effect into our own disciplines.

MY BACKGROUND

For the past four years I have been involved in teaching a course entitled "Elements of Law" to students studying for a Diploma in Social Work at Victoria University Wellington. I am interested in and enjoy teaching non-law students as I also become a learner in such situations. The people studying for the Diploma of Social Work are all in work placements for part of their time during their second year and many of have had extensive experience as practising social workers before they come on the Diploma Course. They are therefore able to feed to me all kinds of information and opinion which is very valuable for my understanding of the Family Law and Welfare Law which I teach to law students.

I have also contributed a set of three to six lectures each year on various law issues to one of the Womens Studies Courses at Victoria which is a half year six credit course for the B.A. with contributions from various disciplines including history, economics and psychology. One year I ran a ten session course on aspects of law relevant to graduate educational psychologists. While I was in the U.K. in 1974-1976 I taught law modules which were part of a B.A. humanities degree at a Polytechnic.

I have found that teaching law to non-lawyers has required different approaches and raised special issues for me in ways which do not arise when I am teaching law to law degree students. I suspect that when these issues are stated in a conceptual way they are common to much service teaching whether it is done by accountants, psychologists, economists, lawyers or whoever.

I think it is appropriate to make some statement about my ideas concerning education in general because these attitudes influence the issues I perceive as difficulties and also my approaches to solving them.

I agree with the view that all education is done by the learner and no matter what methods the teacher employs learning does not occur unless the student actively connives at it. Teaching methods which seek to involve the positive emotions and feelings of the student rather than just the intellect are likely to be more effective in motivating the student to learn. Courses which include self-directed learning and experiential learning are more likely to involve the whole student than an exclusively teacher directed process or a solely theoretical approach. This is not to say that I reject non-experiential learning. I have enjoyed and valued certain lectures I have attended and reading has been a very influential learning for me. Also, I recognise that as a person qualified in a certain field I do have resources which the student does not have and I therefore have a proper role in directing a course. I do seek to use teaching methods which involve the student in some active process during the class time, and try to give the students some choices as to exactly what they wish to be learning about. (1)

I am aware that my personal background, my own educational experience and the constraints of working within an institutional framework inhibit me from always living up to these ideals.

COURSE PLANNING:

WHAT DOES THE OTHER DISCIPLINE WANT FROM YOURS?

No doubt there are some courses which call on "experts" from other fields and know exactly what is wanted from them but in my experience this is rather rare. There tends to be a feeling amongst those in the parent course or department that a dose of what a certain expert has to offer will be useful. Often the people teaching the parent course will have qualified at a time when this useful new field was not included in their program so they have only a hazy knowledge of what the other discipline might have to offer. Alternatively they may have done a course which included this component but gained very little from it themselves.

It is often useful to discuss the matter with several of the staff in the other department rather than relying entirely on the Head of that department or on one other person who has a designated liaison role. The students will always have a contribution to make but unless they are already familiar with your discipline or have come across situations where they are aware that a knowledge of your discipline would have been useful, their contribution to a question concerning their needs is often better answered at the end of the course rather than at the beginning. This is always useful for the next time the course is run if the observation is general enough. Ideally, a course can be flexible enough to respond to specific needs of the students as they become recognised during the course, by both the students themselves and the teacher. Often other constraints, such as examining and preparation of class materials will limit the degree to which the teacher can respond to these needs during the course but it is useful to incorporate uncommitted class time into the timetable if at all possible, so that at least some of these needs can be catered for.

In some areas discussion with people practising the other discipline will be most useful. So, for example, as a lawyer teaching social workers or educational psychologists I have found it valuable to talk to experienced social workers and educational psychologists to try and ascertain areas of need in relation to understanding of legal matters which they have experienced. This is not possible, of course, in a more theoretical subject such as Women Studies where the course is not oriented in the first place. At Victoria in the Women Studies Course, the lecturers from a variety of disciplines, are encouraged to attend the classes given by others so that we can each gain a real appreciation of the background the students have, the emphasis other teachers have given etc. I personally found this very useful and I think my lectures to that course were far better in the two years in which I attended the course myself than in the two years in which I did not. There is always a problem of continuity in a course taught by several different people and this was overcome to some extent by my fuller involvement in the course. This was a possibility for that particular course because it involved only two hours a week for half the year and there were no clashes with my own teaching hours. Obviously I would find it impossible to do a similar thing with all the courses which the Diploma of Social Work students are involved in.

In some areas the servicing of that discipline by another is a regular and common one, and the question has been formally addressed and written about. This is true of legal knowledge for social workers. Textbooks from other countries are often useful if only for their chapter headings. And there is directly relevant material such as the report published by the Central Council for Education and Training in Social Work entitled "Social Work Curriculum Study, Legal Studies in Social Work Education." (2) In one year on the Diploma of Social Work Course we used part of this paper as a basis for discussion with the students of their needs at the beginning of the course.

A further problem which may arise is that the curriculum for the service course may be set out very specifically in some sort of course paper or regulations that theoretically ought to be adhered to, and which have sometimes been advertised to the students about to do the course. Those courses which are described generally and in an open ended fashion are not a problem as one can easily adapt one's own ideas within that framework. The true problem is the syllabus which is totally specific, composed by someone with very different views from your own and possibly some years earlier. I struck this problem at the Polytechnic where the courses I taught to humanities students such as "Criminal Law and its Social Effects", had a prescribed syllabus which to my way of thinking was utterly impossible in the time available. My solution in those particular circumstances was to ignore the syllabus and interpret the title of the subject in the context of the particular degree structures as I thought most appropriate. In doing this I fortunately experienced no problems with the administration or the students. I cannot say what I would have done had the institution not been so acquiescent other than that I would have attempted to explain and argue my position.

Once these avenues of information have been pursued I have generally felt that I am not really much further ahead but in fact I find I am much better equipped to ask myself relevant questions about a possible curriculum and in part to answer them. Such questions might include the following: What do these students want/need from my discipline?; What aspects of my discipline are of value to them?; When are they likely to confront issues in respect of which my discipline is relevant?; How often is this likely to occur?; If they have some knowledge of my discipline how would it be useful to them?; How far into the future will they be relying on the material I am able to give them?; What is the purpose of the 'host' course and how is my discipline relevant to that? Once I have generated a series of such questions I am then in a position to compile a list of topics or skills which I have to offer the students in response to their needs. It is only after such an exercise that one is really in a position to exercise choices about what to include, what emphasis it needs, and to be able to plan the course effectively within the time constraints.

The list for the Diploma of Social Work students for the Elements of Law course looks something like this.

1. By far the greatest amount of law that social workers use is contained in statutes rather than common law (i.e. law enunciated exclusively by the Courts). They need to be able to read statutes and have some idea about statutory interpretation. The emphasis is teaching about courts needs to be on the courts' role in interpreting statute law rather than evolving common law case by case.

2. They need to be able to find the relevant law, statutes, regulations, cases which interpret statutes.

3. Individual topics are not so important as an understanding which is sufficient so they have the resources to find out. The law changes. We cannot cover all relevant topics anyway.

4. They do not need to be able to advise clients on legal problems but they need to be able to recognise a legal problem so that they know when to refer clients on.

5. They need to know what lawyers can and cannot do.

6. They need a broad understanding of the political, social role of law in society.

7. Some social workers need sufficient knowledge of court procedure so that they can carry out their roles as witnesses and on occasion, prosecutors in court, especially Childrens Courts.

8. They need sufficient skills so they can challenge their own agencies in certain instances and take effective action on broad issues at a policy level.

These lists will no doubt change over time. The list I write now is not the same as I would have written when I first took the course. This is mostly due to the feedback I have received from students as to what their needs are.

Having drawn up such a list does not mean that you have to teach everything on it but at least you will be aware of what you are leaving out which you may nevertheless regard as important. You may also find in the course of making such a list that much of what you might have included in order to give a "basic grounding" in your subject can be jettisoned. It was only a basic grounding for students in your own discipline who needed it for research purposes or as a basis for more advanced work in the area. Choices will have to be made to meet the time constraints but if they are well informed choices you may end up with a better course than if you were given all the time in the world.

The problem of pitching teaching at the right level may also be resolved in part by such an exercise. Hopefully, the exercise in setting priorities has freed you of some of the compulsive inclusion of material which is traditionally part of your subject. (e.g. from a lawyers point of view a detailed coverage of the basis of the common law).

If broad coverage can be cut down by informed and well thought out choices then it will be easier to find time for in depth coverage in selected areas and to feel more comfortable about a broader brush treatment of material which is less relevant for these students.

PITCHING TEACHING AT THE RIGHT LEVEL

There are two main problems which may arise in service teaching in pitching the teaching at the right level.

1). The teacher may assume too much of her discipline as general knowledge and begin teaching one or two steps up the ladder from where the student is. This can happen in our own disciplines with first year students but may sometimes be overlooked because the pieces will fall into place later on and the student whose main focus is in that discipline will have the incentive, the resources and be learning the skills so she can follow up material she did not comprehend. In most service teaching the time investment is more limited and there is a pressure to get through introductory material so that the material which is of direct relevance to the student can be reached. But genuinely useful learning will not take place when this directly relevant material is presented if the building blocks are not there. The social work student will gain little from a discussion of the way the courts have dealt with cases involving dispensing with parental consent in adoption, if she is not aware of the significance of the statute which sets out those grounds and the role of the court in relation to that statute. She does not have the time or the resources to be able to make the connections on her own.

2). Although the student is totally ignorant in the particular area of the service teaching she is well qualified in another field and cannot be approached as you would normally approach a first year undergraduate in your own discipline. In these circumstances a high level of general reading comprehension can be expected but it is easy to forget that some disciplines have very different approaches to thinking from others, and also that almost all disciplines have a jargon which is goobledegook to the uninitiated. A person who has a 'popular' general knowledge of your subject may be very articulate in the area but because the knowledge has not been acquired in a conventional academic way nevertheless have 'gaps' in that knowledge not readily appreciable by the expert. For example, as a lawyer I may have some general knowledge of humanistic psychology which is quite specific and well developed and yet still lack any basic understanding of the principles of perception which any first year psychology student would know. The social work student may have an excellent knowledge of the adoption process, be able to discuss it very knowledgeably, in some aspects be better informed that I am, and yet not be aware which parts of that process are legal requirements and which are agency policy.

I do not know that there are any magic formulae for solving these problems except to say that there is an obligation on the teacher to be sensitive to the student's response, to give opportunities for feedback from the students and to be able to adapt accordingly.

The teacher must check from time to time that concepts have been grasped and be prepared to re-cap material dealt with earlier when it becomes relevant at a later stage. The essential in the teaching context becomes one of dialogue between the student and the teacher so that time is not wasted going over material the student already knows or in presenting material which the student does not understand or misinterprets because of a lack of understanding of more basic principles. The teacher needs to be genuine in inviting requests to go over material. "Nobody would want a re-cap on X would they?" does not qualify. If the manner of the teacher is not condescending then simple explanations are always acceptable. I know I enjoy scientific programs on television directed towards children. If a fact or a concept is new and relevant to a person it has its own interest value.

MARKETING YOUR DISCIPLINE TO THE STUDENTS

Social work students as a general rule do not have a great deal of sympathy for the law and lawyers. They see the law profession as making money out of other peoples misery and as being lost in a world of words which bear little relevance to the alleviation of the pain which their clients are going though. For example, many of the social work students I have taught have had the experience of working with a family in which one of the children was being abused and when the social worker after much agonising finally decided the situation warranted the initiation of the legal procedures necessary to take the child out of the family, this action was blocked in court by a lawyer acting for the parents who was not addressing the "real" issues as perceived by the social worker. There are many other similar experiences which social workers have had and initially there is a great deal of frustration and resentment with such situations which is transferred to the two of us who teach the law course, and the course itself. I am not an apologist for the legal profession and there are many instances in which criticism is justified. There are also misunderstandings on the part of the social workers of the role of the lawyer in protecting the rights of her particular client, misunderstandings about the rules of evidence and their value etc. This is a 'mood' which we now expect to confront us in the first four sessions, and not to be completely resolved until near the end of the course. We try to deal with it by giving the students the opportunity to articulate it, through the early discussions of their expectations of the course, what they want out of it, what their needs are etc. Last year we used an article by Andrew Phillips in the Modern Law Review entitled "Social Work and the Delivery of Legal Services" (3) as a jumping off point for this discussion.

I suspect that the reaction of social workers to lawyers is perhaps at the extreme end of the spectrum in initial "reserve" as regards service teaching. But nevertheless I think that some manifestation of this 'reserve' tends to be present in most areas of service teaching. "I came to learn X and I resent time being siphoned off for this other subject in which I am not at all interested." "People in the service subject are not practical/creative/job-oriented like us, but are airy-fairy/boring/stuck in an ivory tower". etc.

It is unwise to deal with such resentment or rejection on the basis of suspicion only. If the students feel that you have assumed something about them unjustifiably you will merely have confirmed their gravest doubts about you and what your subject has to offer. The forum needs to be created in which these attitudes are voiced and then they can be responded to. This can often be done in an early session where the aims of the course, the needs of the students, the relevance of your subject etc can be discussed. I do not think the appropriate response when a student makes some such observation is necessarily to attempt to disavow what the student seems to be accusing you of, but rather to indicate that you have heard the comment and that this is something that will be dealt with as the course goes along. So, if we go back to the example of the social worker who believes that the lawyer should not have defended the parents the way she did, the response is that this raises issues about the role of the lawyer, the way rules of evidence operate, and what a social worker can do in such a situation, and these will be dealt with in the course.

The fore-going may not seem particularly relevant to the accountant for example, who is giving some classes to law students on professional trust accounting. But there is still likely to be a "them and us" type barrier between teacher and students in such a class. The teacher may feel that it would be inappropriate to address the issue at that level. Nevertheless a clear introductory statement of the reasons for requiring such a course and the value in it which the teacher perceives for the students with an opportunity for student question and comment would be time well spent. To take this time gives the students an opportunity to experience the value that the teacher sees in her subject and inevitably reveals a little of the teacher to the student. This kind of mutual acknowledgement tends to create a better learning environment.

CONTENT AND APPROACH TO YOUR DISCIPLINE WHICH WILL BE OF MOST VALUE TO THE STUDENT

I am concerned here with the way in which the other discipline is presented to the student and a consideration of which approach may be best or most useful. There seem to me to be three possible approaches to the content of any subject and only one or all of these may be appropriate in certain circumstances. The three approaches I am calling, (a) contextual, (b) informative and (c) skills.

Contextual Approach

This I am defining as a broad brush approach which is primarily directed towards the historical, sociological, philosphical and economic implications of a subject. This approach asks the question why and discusses how things ought to be as well as how they are. This is the approach I employ in teaching law to the women's studies course for example. That course is concerned with women's place in society in an historical and present day context, incorporating specific material from disciplines such as economics, psychology, religious studies, sociology and law. So if for example I choose an area such as equal pay legislation I am not expecting that at the end of the lecture the students will be in a position to take their own case on equal pay to the Court or the relevant Tribunal. I do expect to set that law in its social and historical context, to discuss the difficulties which such a concept runs up against, to use specific complaints which have been heard by the Court to illustrate such broader issues. In order to set the scene for the contextual discussion I need to give a certain amount of basic information, but the information itself is not the focus for the lecture.

For the humanities course on "Family Law and Social Change" which I taught at the Polytechnic I also used an essentially contextual approach although because there was a longer time investment in this course, the level of information on which to hang the philosophy, history and sociology about the 'family law area' was inevitably greater.

Informative Approach

This approach I see as being essentially descriptive. It explains how things are and not how they ought to be or why they are that way.

I find this type of teaching can very easily become uninteresting, even if for example the situation is set up so that the students find out the facts or information for themselves first of all, and use class time to clarify their understanding. There is a risk that some types of service teaching can rely too heavily on information on the basis that the information is what the students need and that the whys or hows of that situation are not relevant. Some discussion of the context in which the information operates i.e. the whys and hows makes the information more interesting and relevant for most students. The difficulty that I have experienced in for example the social work law course is that I consider a correct and clear understanding of the information, i.e. the law on a particular topic, is an essential prerequisite for a more contextual discussion but that the students are only too willing to leap quickly into contextual discussion which they can enjoy and participate in, using their own experience and general knowledge without getting down to the specifics.

Skills Approach

The skills approach is concerned to familiarise the student with the process so that she can carry out the task herself. Skills concern "how to" rather than how things are, or how they ought to be and why. I am here referring mainly to job-oriented type skills. Any good academic teaching is modelling a skill in the sense of an approach to knowing, learning and understanding and in this sense contextual teaching is also modelling a skill.

This approach is especially relevant in service teaching to job-oriented courses. So the law student who studies accounting needs to have some basic understanding of how to find the law on a topic, how to read a statute, how to present evidence in court. This kind of teaching/learning should ideally be experential. In teaching the Diploma of Social Work students we do give them practice in reading statutes and cases both as part of the introductory materials and also in the second part of the course when they present seminars and write an essay on individually chosen topics. The research necessary for the seminar and essay is also hopefully an exercise in finding their way round legal references and material. So far in the course the presentation of material on giving evidence in court and prosecuting a case in court has been presented only at a theoretical level. This is partly because this topic has been dealt with in student facilitated seminars and partly I admit, from my own doubts as to my capacity to set up a successful role play or similar experential learning tool to deal with this area. We may take the plunge later this year.

In many areas of service teaching a skills approach is not appropriate. For example, the material I present in lectures to the Women's Studies course is entirely informative and contextual, the only skills component being one of academic approach. This approach seems more consistent with the aims of the course as a whole and I would find a "how to do the lawyers task" approach very limiting as to the coverage of concepts.

An important factor about teaching skills is that it generally involves a greater input of teaching time in order to result in any effective learning. The Diploma of Social Work introductory materials are structured with the intention of giving the student practise in legal reading skills at the same time as conveying a certain amount of information which in its turn gives rise to discussions of a contextual kind. Whether this may be attempting too much all at once I am not sure. The more capable students do seem to benefit in all these ways but some are left rather bewildered. This became clear in a test which we set last year in which one of the questions required a statement of the theory about one aspect of the course and another question required the students to apply this theory in order to arrive at the answer. A number of students could answer the first question which required a definition in response, but were unable to do the task required by the second question.

MODES OF TEACHING AND ASSESSMENT:

STRATEGIES FOR THE CLASSROOM

I am not sure that the issues raised in respect of modes of teaching and assessment are likely to be very different in service teaching from teaching in our own disciplines. Most of the constraints I have experienced in service teaching are similar to those I experience in my own department. A degree structure and courses are not usually very flexible and such patterns can only be changed over a fairly lengthy period involving a great input of time and politicking. The contact hours for a course, the number of students taking the course, the size of each class, the division of contact time between large and small classes etc. tend to be determined by the course structure and any move outside the time-tabled teaching hours tends to run into problems with clashes in the students' timetables, lack of available rooms and a tendency to overcommit oneself in contact time. I am not meaning to discourage any teacher from taking steps to organise her own student contact time in a way more suitable to her teaching aims, or to discourage anyone from working towards structural changes. What I am concerned to deal with in this paper are ways of making the class contact time a more valuable learning experience within the constraints in which we must operate at least in the meantime.

The most important resource on which any teacher must draw is himself or herself. However carefully a course is planned, however well the teacher is prepared academically, the classroom is still essentially an unpredictable place. The most successful teacher is one who sees this unpredictability as an asset and uses it to enhance the relevance and impact of the lesson's planned content. Ideally the lesson "plan" is flexible and open enough to incorporate the material which the students bring to the classroom. This material includes not only "academic" content but also mood and personality.

There are two factors involved in this; the teacher's ability as a person to "allow" this degree of flexibility in the classroom, and the structuring of a course so that there is space for student contributions.

(a) Teacher's ability to "allow"

If the teacher is totally present to the students good learning experiences are more likely to happen because the teacher will be better able to structure sessions which cater to the students' needs without the teacher's own "neurotic" needs (e.g. to control, to dominate, to avoid self-exposure) getting in the way. If a teacher develops her self-awareness then she will become sensitive to the ways she interacts with others. She will be a better teacher because she will be able to respond more effectively to the needs of her students. Most of us would have difficulty in achieving such self-awareness on our own. The many and varied approaches of the personal growth movement are available to us if we wish to pursue this. (4)

(b) Structuring for student input

In order to achieve the most successful learning interactions between students and the teacher there needs to be structured opportunities for the students to express their points of view as part of the course.

John Heron in a monograph entitled "Assessment Revisted" (5) discusses the transition from authoritarian control to collaborative control in the main parts of the educational process i.e. cause objectives, the program, assessment and evaluation. He sets up a model in which decision making can occur according to one of seven basic models; as shown in Figure 1.

He comments on this model as follows:

> "On the left are unilateral decisions by staff, on the right unilateral decisions by the students, in the middle collaborative decisions. Model 1 is the traditional unilateral control model. Model 7 would make staff redundant or at most resource persons waiting to be called on by students on terms unilaterally determined by students. Model 6, I have already suggested, is the absurd one: if everything is negotiable, then staff do not stand for anything, have nothing to offer. The most comprehensive model is model 3; and within itself it can encompass the widest range of alternatives along a spectrum from staff control to student control.

I have found this a very empowering model. It allows me to surrender control gradually in specific areas, at a pace which is comfortable for me. There is a danger in coming upon new ideas in education that if we attempt to try methods which are new to us and are appealing to us at an intellectual level, but beyond our capacities as persons, they are likely to go wrong for us and to be rejected as unworkable. It was not the theory that was unsound, but the level of our own comfort with that technique. This relates back to what I have stated earlier about self-awareness.

The following are some of the practices I would want to encourage in my courses in order to set up student/teacher interaction.

1. some student involvement in the choice of topics for study.
2. a variety of teaching styles which incorporate student input such as discussions with the whole class, discussions in pairs or small groups, question and answer discussion on materials read before the class by the students, student facilitated sessions.
3. clear criteria given to the student for any assessement which is to take place. These criteria might be evolved by teacher/student discussion rather than just set out by teacher.

This model is a fairly middle of the road one. None of the decisions are entirely teacher made nor are any entirely student made. I assume that a teacher in a tertiary institution does have a level of expertise and experience greater than that of the students which entitle the teacher to make some decisions for the course which are not negotiable by the students. I also assume that the students have a valuable contribution to make and that an entirely teacher directed course would also be lacking. I have been conservative about the level of contribution from the student on the issue of assessment. I believe that some involvement of students in at least some assessment decisions is appropriate but I have not yet experimented with this myself. I do not rule out lecturing as an appropriate method of instruction for a proportion of class time although I do not favour it as a sole method of introduction.

ELEMENTS OF LAW FOR SOCIAL WORKERS

It may be helpful to set out how I fulfil or do not fulfil these aims on the Diploma of Social Work course.

The Elements of Law Course is done in the second and final year of the Diploma of Social Work. During this year the students are working in a social work placement for two days per week and at university for 3 days. Most of the students have been working in some kind of social work capacity before they come on the course and several of them are on release from a social service Government Department for the course. The law course runs for about 22 weeks and we have one 1½ hour session each week. Usually the course is taught by two people although I did take it one year by myself. We have not really made specific use of the fact that there are two of us involved. We both attend all the sessions and the two areas of expertise are useful when we divide supervision of the students seminars and essay topics between us. It does mean that if we want to do some straight information giving we can set up the delivery between us so that it is a little more interesting to listen to.

We have made a decision that a certain amount of introductory background information is necessary for the students to know before they can effectively study the legal aspects of areas they are specifically interested in. Therefore the course is divided basically into two parts. The first part includes the non-negotiable information, and the second part has been set aside for seminar topics chosen by the students themselves.

For the first part of the course we have devised a set of materials which has evolved over the last four years into into its present form. At the initial meeting of the course we explain the course format, assessment requirements etc and hand out the materials. The first section is an article entitled "Social Work and the Delivery of Legal Services" (6) which we ask the students to read and use as a basis for the next couple of sessions when we discuss expectations for the course, the role of the lawyer, the uses of the course for the students. The article by Phillips specifically raises the issue of hostility of social workers to lawyers and also the kind of legal knowledge which might be useful for social workers. It very usefully brings to the surface the element of antagonism which usually seems to lurk about and we get the opportunity to deal with it. This is not to say that we resolve it but is put on the table early in the course and we can refer back to the issues raised by the discussion about it, as the course progresses.

The rest of these materials essentially consist of pure information. The students are asked to read and attempt to understand a part of this material for the class and then that material is discussed in class time. There is a section at the beginning explaining legislation and a section explaining case law. Contained in these sections is a great deal of information and concepts which are new to the students. The material is there as a reference point for the student and I see my role as one of explaining and clarifying. Little class time is spent on this.

The remainder of the material is divided into four 'studies' which seek to build on the earlier general overview by using specific examples of those matters already encountered briefly. We have tried to find material for the studies which would show statutes, regulations, case law, the courts and parliament "at work", on an issue which is relevant to the students as social workers. We hope that the specific examples deal with areas of law which are of interest in themselves, but we also hope that the students will be able to generalise the learning around the specific topic to a broader understanding of how courts approach the interpretation of statutes etc.

So the first study deals with the New Zealand domestic purposes benefit legislation and the cohabitation rule contained therein which limits eligibility. Sufficient of the statutory sections are given so that eligibility for the benefit can be discussed generally and there is also an extract from the social welfare department leaflet about the benefit so the two can be compared. Then there is a report of a case called Furmage (7) in which the court interpreted the co-habitation rule. Next there is reproduced the amendment to the statute which followed that case and the report of the third reading of the Parliamentary debate on that amending Bill. The actual material for the student to read is fairly concise (seven double pages) and yet information concerning the relationship btweeen statute law and case law, interpretation of statutes by the Courts, and the passage of a bill though Parliament, is presented and can be expanded on in class. The students have the opportunity to discuss the whys and wherefores of domestic purposes benefits as such at a contextual level, and we, the teachers, insist that the judicial process of statutory interpretation is also discussed.

The second study involves a case which questions some regulations under the Education Act. The third study involves a custody case for which we have reproduced the full Court of Appeal judgment containing all the facts and the judgment as reported in the law reports which is concerned only with the legal principle involved. The fourth study includes the Family Courts Bill and part of some submissions made by several members of the Faculty to the Statutes Revision Committee.

This part of the course using the materials usually lasts about ten to twelve weeks. Part of our assessment for this course has been to set a written examination based on this material. In 1980 the exam was 1¼ hours and was worth 30% of the final grade.

The second part of the course was run on a seminar basis. These were the instructions given to the students at the beginning of the year.

> "Two students will deliver a seminar each week. Each student will have half the class time to structure as he or she wishes. The topics may be chosen by students, and, preferably related topics will be scheduled on the same day. One week before the seminar the students taking the class will hand out a one page outline to each member of the class. This outline will contain a statement of the main issues and questions to be dealt with during the seminar plus a reference to not more than twenty pages of reading material for the benefit of the other students. This material may be placed on Closed Reserve at the Law Library. All students are expected to read this material before the seminar to that they are able to contribute to the discussion.
>
> An essay of not more than 2,000 words on a topic chosen by the student will be submitted by 9 October. The topic may be in the same area as that covered by the seminar. But it is anticipated that the essay will cover a more limited question in greater detail."

There was some reluctance among some of the students about choosing their topics. We gave them some idea of topics which had been done in previous years but emphasized that they were free to go into new areas. Wherever possible we scheduled related topics for the same day and in one or two cases the students concerned gave a joint seminar. The students were encouraged to discuss their choice of topic, appropriate reading and the form of the seminar with their designated supervisor.

I find that there is a problem that some students lack skills in facilitating seminar sessions. The format set out above I have copied from a colleague at Victoria. The idea behind it is to avoid the student facilitator reading an essay to the class and to give the other students in the class some realistic direction for preparation so that they are equipped to participate. It is by no means a complete answer to the problem. We did attempt to discuss facilitating in class at the time the seminar sessions were set up and to discuss it with the students individually. There was difficulty in devoting more class time to it. Presentation of material to a group does seem a relevant skill for social workers who may have to lead case conferences or argue for changes in policy within their agencies but it seemed to us rather outside the rubric of the law course, at least in so far as devoting more time to it was concerned.

The purpose in requiring an outline and minimal reading material reference was so that the members of the class not presenting the seminar would have some basis for comment and questions during the seminar. Many of the students in fact failed to prepare for class in this way and often participation was left to those students who had some work familiarity with the area, or to comment which arose out of general knowledge and interest. There was no assessment incentive for the students not presenting the seminar as the only examination was that which took place at the end of the first part of the course. (30%)

The remainder of the final mark was made up of 20% for the Seminar Outline and delivery, and 50% for the essay.

I would like to be able to set up a course in which the students' enthusiasm for the subject was encouraged and developed so that they voluntarily put time into an area without the use of a big stick labelled "assessment". I wonder if the course as it stands at present is too teacher directed so that some reservoirs of student response are stifled. Some student involvement in assessment of the seminars might be helpful here.

There has been a problem expressed by the Diploma of Social Work students concerning the workload required of them having regard to the fact that they were in placements for two days a week. Discussions were held at the end of 1980 with the Teaching Research Centre staff at Victoria University which unfortunately I was not able to attend as I had already begun to leave. The upshot of these discussions has been to reduce the workload for the second year students. Each course will have one piece of assessable work worth 50% of the final grade - for the law course this has been designated as the examination. In addition the students will write an "overview essay" linking all their courses to their placement experience. This essay will be graded by each teacher separately. So when viewed from a law perspective it gets one grade, from a social administration perspective another, etc. This essay will be worth 40% of the final grade and the remaining 10% will be given for an oral exam based on the overview essay. The seminars which we shall continue to run will be a term's requirement and there will also be a minimum attendance requirement for classes.

Up until now all the assessment grades for the law course have been made exclusively by the two teachers involved. I have become interested in the idea of involving the students themselves in the grading of their own work. I would propose beginning such a process at a fairly conservative level of agreeing criteria for marks and then having a discussion with the student as to how well she feels she has fulfilled those criteria, with final decision being made by the teachers involved. It would seem that such a course of action may be prevented by the new assessment format but I am not sure of that yet.

It has been a very interesting experience assessing the work in this course with another teacher. Our pattern has been for each of us to mark each piece of work without the other knowing the mark given. We have then got together, revealed our respective marks, discussed our reasons for marking as we did and arrived at a mutually agreed final mark. We have found that we invariably agree on our individual marking with the top two or three papers and any failures. In between, our initial assessments have sometimes been wildly different. It is a very salutary lesson and makes me more amenable to incorporating some student self-assessment into the grading process.

CONCLUSION

This paper is intended to be a catalyst for the workshop. I am hoping that the workshop will take issue with some of the propositions I have put forward and expand on others. I also hope that reading the paper will bring to mind other issues which we can also discuss. We may find it useful to share some of our own teaching practices and problems.

SOME SUGGESTED DISCUSSION TOPICS FOR WORKSHOP

1. Assessing student needs in the other discipline
2. Teaching information in ways which arouse student interest
3. Teaching skills experientially
4. Importance of the personal growth of the teacher
5. Involving students in their own assessment
6. How to have good student-facilitated seminars
7. Co-teaching with a member of your own or the 'host' discipline
8. Pitching teaching at the right level
9. Including student response and interaction in large classes.

I propose that we spend a short time in the workshop setting an agenda of topics for discussion. I am not particularly attached to any of the above topics and will be welcoming alternative or additional suggestions.

FOOTNOTES

[1] see 'Modes of Teaching and Assessment' later p. 218.

[2] Social Work Curriculum Study: Legal Studies in Social Work Education Report of a Study Group. Paper No. 4 1974 Central Council for Education and Training in Social Work.

[3] (1979) 42 MLR 29.

[4] A starting point for some theory and examples of practice would be for example, Carl Rogers in Personal Power, Dell Publishing Co. Inc. 1977 New York for a person centred approach and G.M. Victor "Transactional Analysis in Law Instruction". 15 American Business Law Journal 101-123 for an introduction to principles of T.A. and their relevance to teaching.

[5] John Heron "Assessment Revisited" monograph published 1979 British Postgraduate Medical Federation.

[6] A. Phillips (1979) 42 MLR 29-41.

[7] Furmage v. Social Security Commission [1978] 2 NZAR 75.

FIGURE 1

1.	Staff decide all	(educational process issues)	
2.	Staff decide some	Staff with students decide some	
3.	Staff decide some	Staff with students decide some	Students decide some
4.	Staff decide some		Students decide some
5.		Staff with students decide some	
6.		Staff with students decide all	
7.			Students decide all

SUPERVISION OF POST-GRADUATE RESEARCH STUDENTS

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THE CONTEXT

Postgraduate students - are they apprentices, trainees, research assistants, disciples, fellow researchers or colleagues?[1] Within the Australian context it is possible for students to be any of these. Staff and students may have widely different expectations of what higher degree study involves, and the institutional expectations are often vague and open to individual interpretations. At the University of Queensland there are, for example, hardly any specifications of standards for Master degrees; a PhD thesis is expected to provide "a substantial contribution to learning" and be an "original contribution to knowledge".[2] How do students get to the point where they can make this valuable contribution to the discipline?

The supervisor plays an acknowledged, though by no means clearly-defined, role in this process. A report into research at the University of Queensland states:

> The supervisor of a research degree plays a crucial role both in the selection and execution of the research project, and in the personal training and development of the student. It is probably the most responsible task undertaken by an academic.[3]

Only those staff members regularly become supervisors who have high academic qualifications and good research records. The prerequisite of high formal qualifications but no induction into the process of supervision supports the myth that good researchers will automatically be good teachers. The Federation of Australian Universities Staff Associations (FAUSA) in its Report on Research also attributed to all active researchers will and ability to supervise effectively.[4] That a lot of supervision is in fact not as efficient as it could be is documented in a number of research studies.[5]

Most staff development activities in most institutions focus on teaching skills, i.e. teaching skills in the classroom. Supervision and training in research methods are teaching functions as well. As supervision is the one area where teaching and research overlap and benefit each other, it is one area where staff development programmes can go beyond the usual concentration on classroom activities. Supervision is also a very private interaction, and because of its privacy fraught with danger of unmet expectations on both sides, breakdown of communication, difficulties arising out of clash of personalities and supervision styles. The workshop outlined below aimed to take supervision out of this private context and provide a forum where staff would examine their assumptions, expectations, strengths and uncertainties with regard to supervision and how these influence their approach and practice.

PRECEDING WORKSHOPS

The University of Queensland for some time has been promoting its graduate studies and has openly committed itself to stronger emphasis on research. Although the proportion of higher degree students is below the national average, the actual number of higher degree students is high - 2077 in 1980. If students in other graduate degree courses are included in the figure, the number of students requiring some supervision of research projects exceeds 3300.[6] An increasing number of staff is involved in supervising; and many individual staff are both enrolled as higher degree students and supervising students' postgraduate work.

In the context of the Tertiary Education Institute's professional development programme a workshop/seminar for supervisors was offered with the following aims:

(a) to increase participants' awareness of their own assumptions, expectations and approaches with regard to supervision;

(b) to enhance their understanding of role conflict for supervisor and postgraduate student;

(c) to enable participants to reconcile their approach to supervision with student expectations and University guidelines.

Two workshops were subsequently held; staff from ten disciplines and various ranks - lecturer to professor, and with various expertise and experience in supervision participated. I attempted to achieve the aims of the workshop by enabling participants to engage in interaction, discussion, and reflection in a supportive and stimulating environment.

Materials used as stimuli for discussion were:

- a three part questionnaire; in section one participants noted at the beginning of the workshop three areas they wished to discuss; in section two group members checked towards the end of the sessions whether these areas had been satisfactorily discussed; if not, the issues could then be raised in the forum; section three was the evaluation of the workshop to be done at the conclusion of the session;

- a videotape of an interview with the chairman of the Postgraduate Studies Committee of the Professorial Board, University of Queensland;

- questionnaire based on the University guidelines for supervisors; three versions, A for staff to rate the importance of various functions in their supervisory practice; B for staff to rate the importance these functions might have for their students; C for students to rate the importance they attach to the functions;

- role perception rating scale;

- example of a written account of decisions taken in a meeting between supervisor and student;

- file of research results on supervision.

The evaluations showed that participants "liked best" the interactive nature of the session and the materials used.

HERDSA CONFERENCE WORKSHOP

Therefore it was decided to retain at the HERDSA Conference the format of the session and all the materials which did not relate specifically to the University of Queensland guidelines, and add a handout with questions arising from the videotape for discussion, first in pairs and then generally. The first question "What do you see as the aims of higher degree studies?" generated a list of very diverse aims, ranging from "furthering supervisor's interests and publications" and "cheap labour" to "sharing excitement", "socialization into the profession", "professional qualification", and "to achieve research into new and original frontiers of knowledge", "train the student to be able to plan a research project, implement it, write a publishable report". While there was no discussion as to the validity of any of these perceptions, we discussed the implications that different viewpoints have for supervision.

The second question, "How do you ensure a progression from dependent to independent working?" resulted in a number of suggestions made from staff's own experiences: frequent meetings at the initial stage of research; identification of student's competence and gaps in background, filling these gaps and then retreating more into the background as sounding board; regular contact for discussion, criticism, verbal or written reports; asking student to present work for seminar discussion. All the individual responses tended to stress the intellectual involvement of the supervisor in the student's work and continuous intellectual interaction and encouragement.

Quite often students who have not come through the undergraduate programme of the institution they propose to study in for their higher degree have gaps in their knowledge which impede their progress. Suggestions to make up for a lack of research skills and background included course work and providing or referring to courses in research methodology at own or other institution. Others suggested a less formal way by interactive teaching, or by directing the student in self study. "On the job training" was also mentioned as one way of ensuring that the student was acquiring the relevant skills: the student engages in research and the supervisor monitors methods and results closely.

A further question explored the extent of the supervisor's responsibility towards the student on a professional and personal level. While all participants thought this was extensive there was uneasiness about personal involvement. "It depends" seems one accepted response. As one pair noted down in their discussion "To the extent personal contact enables freer and more frank intercommunication between supervisor and student it should be a responsibility of the supervisor". The professional responsiblity demanded "regular contact, frank criticism, encouragement of independence", "tangible evidence of progress through each stage of the programme to satisfy professional academic concerns and ensure the student control over his work". In this context role conflict was mentioned when staff are supervising colleagues, mature age students, part-time students who are independent, autonomous, successful persons in their own occupations.

Ways of facilitating the supervisory process were discussed: for example, induction by an experienced supervisor through joint supervision to help the inexperienced supervisor; but from the student's point of view joint supervision can mean 100% more access to expertise or abdication of responsibility by both supervisors. Contracts, and minutes taken after each meeting between supervisor and student, were mentioned as one way to give supervision a structure.

There was some uncertainty and disagreement over how often the supervisor needs to see the student, or rather how often the student needs to see the supervisor. There were many disciplines represented in the group and supervision at various levels in the various fields requires different frequency and kind of contact. The accessibility of the supervisor was stressed as being important, with the formality and regularity of the meetings left open.

There was no attempt in the group to come to "solutions"; different individual approaches were regarded as alternative ways of facilitating and increasing the effectiveness of supervision. Indeed, the range of conceptions and practices was an important input into the session. Aim of the workshop had not been to produce a set of 'do's and don'ts' in supervision, but to help the supervisors to clarify their own approaches and see how they could facilitate student learning and progress.

At the beginning of the session group members had been asked what aspect of supervision they felt most uneasy about and which three aspects they wanted to discuss. Towards the end of the session they checked whether these aspects had been discussed to their satisfaction. Most of the areas which participants had been uneasy about and/or had wanted specifically to discuss were directly concerned with the process of supervision: the extent of supervisor's responsibility, guidance and control; developing a working relationship with students; alternative forms of supervision; recognizing different needs; research literature and studies in postgraduate supervision. All these areas were seen as having been satisfactorily discussed.

Aspects of supervision which participants had wanted to discuss but had not been able to were: initial competence of students, assessment criteria for project work and postgraduate work generally; guidelines for Higher Research Committees and Supervisors.

Discussion on the above aspects of supervision occupied a large part of the session and subsequent activities like examination of a role perception rating scale, the file of research findings, and response to aspects of supervision which had been noted down, but not discussed, were curtailed because of time pressure.

EVALUATION

Three questions were asked in brief evaluation at the conclusion of the session. All group members present through the whole of the session (8) responded; two participants had joined the group mid-way and did not evaluate the session.

Below are the summary results:

	no. times mentioned
1. "What did you like best about the workshop?"	
interactive nature, discussion, participation by all	6
well structured, coherent, well planned	5
materials used, handouts, video	4
2. "What did you like least about the workshop?"	
time constraint, time pressure	6
no answer, no criticism	2
3. "What improvements would you suggest?"	
more time, or two sessions and/or topics	2
consideration of assessment	1
"perhaps get a feeling from group as to what is the common area of interest for the group to gain best use of available time"	1
summary of discussion sent to participants	1

A summary of discussion has been sent to all participants. I had attempted to get a feel from the group as to what their concerns were by asking them to note down areas they wished to discuss and returning to these later. But as the evaluation indicates there was not enough time to cover all aspects adequately, or to make full use of the materials provided. The workshop proved that there is scope and receptiveness for a number of seminar/workshops on supervision, including assessment of theses.

FOOTNOTES

1. This section is adapted from Ingrid Moses, "Master or Colleague? - Developing a Course for Supervisors of Graduate Research Students", Improving University Teaching, Seventh International Conference, Tsukuba, Japan, July 1981.

2. University of Queensland Calendar 1981, St. Lucia, 1980, pp. 643-644.

3. Report of Vice-Chancellor's Committee on Research and Postgraduate Study, University of Queensland, St. Lucia, July 1977, p. 17.

4. FAUSA, Report on Research in Universities, Melbourne, July 1979, p. 10.

5. Particularly E. Rudd, The Highest Education, Routledge & Kegan Paul, London 1975; J. Welsh, "The supervision of postgraduate research students", Research in Education, No. 19, 1978, pp. 77-86; D. and K. Battersby, "In the eye of the beholder: (results from a New Zealand survey of education students' views on postgraduate research supervision)", in A.H. Miller (ed.) Freedom and control in higher education, Research and Development in Education, Volume 3, HERDSA, Sydney, 1980, pp. 88-101.

6. University of Queensland Statistics 1980, St. Lucia, 1980, p. 18.

Part V:

Value Judgements

1. Evaluation of the final examination
   B.W. Imrie

2. Workshop on evaluative skills
   E. Roe & R. McDonald

3. Students teach students
   D.V. Queis & M. Frilling

4. Some suggestions on implementing a successful system of student evaluation
   J.P.Henderson

5. AID for Britain
   C. de Winter Hebron

6. Identifying practical problems and issues in evaluation
   H. Edwards & A. Remenyi

INTRODUCTION TO PART V

How well did the students perform as learners? How well did the teachers perform as teachers? How well did we perform as evaluators of how well we performed? These appear to be among the critical questions which need to be addressed in the quest to improve the teaching and learning process. Assessment of student learning performance continues to be a major element in the workload of teachers in higher education and yet it is interesting to reflect on the reasons why in a conference on teaching and learning so few contributors turned their attention to it. Apart from Bernard Rechter's paper in section I and Brad Imrie's paper in this section there is little direct reference to the matter. Through the conference papers there is clearly a pervasive concern for the needs, interest, involvement and motivation of students in the learning process which could mean that the tide of opinion is perceiving assessment as an oppressive influence emphasising control and authority rather than involvement and self direction. Whatever happened to the notion that students needed formal assessment in order to be motivated to learn?

Brad Imrie's paper reports on approaches used to evaluate final examination experiences of fourth year architecture students and graduate education students. The design of examinations, the setting of questions marking and their interpretation require professional skills of the teacher as an examiner. In this process there are questions of difficulty, time constraints, fairness and validity as perceived by the teacher/examiner and student/candidate. Evaluation of the final examination therefore should be part of course evaluation if full account is to be taken of student opinion. A second component of evaluation of the examination is to undertake statistical analysis to measure the correspondence of the achieved weighting with the planned weighting of combinations of marks for various assessed tasks. Such procedures provide information for moderating the rank order of students marks reflecting a more acceptable measure of student performance. Brad Imrie concludes that failure on the part of teachers to use these approaches is likely to mean that their performance as examiners is deficient.

Ernest Roe and Rod McDonald describe the materials and exercises used in a pilot workshop on evaluative skills sponsored by HERDSA and funded by the Tertiary Education Commission. The workshop emphasised the importance of attempting to do an effective job of evaluation within political and institutional constraints. The workshop stressed skills in obtaining evaluative information, planning and evaluation, disseminating evaluative information and coping with problems of resistence.

Deitrich von Queis and Mathias Frilling describe problems associated with an initial course of study for officers studying at the Federal Armed Forces University in Hamburg, West Germany. These problems gave rise to a project entitled 'students teach students'. In this project older students took over the role of teaching staff by acting as tutors for freshmen. Student evaluation questionnaires, participant observation, and non-structured student feedback were used to evaluate the course. Results of the evaluation indicated that students felt the 'tutors' were better than the conventional lecturers on a number of criteria. The paper highlights interesting relationships between a decision to change the learning situation, implement an evaluation process and decide on the methods for collecting evaluative information. John Henderson's workshop on the other hand, sought to highlight the relationship between student based systems of evaluation and the process of staff education and self improvement. This is a theme which runs through Chris de Winter Hebron's paper. Chris describes the development of a behaviourally referenced, student rating instrument called AID (Assessment for Instructional Development) which drew on the results obtained from a survey of perceptions of staff and students from 12 institutions in 7 disciplines. Based on this work it was concluded that it was not possible to produce a 'global' evaluative instrument. Consequently AID was developed as a discipline bound set of instruments which would allow description of disciplinary climates (see his earlier paper included in Part II) and provide useful information for teachers to analyse and improve the teaching and learning situation.

Andrew Remenyi and Helen Edwards describe their workshop which focused on the reasons for undertaking evaluation and for whom evaluation is undertaken. Reasons for evaluation could be classified as organizational, individual or curriculum related. The audiences for evaluation included teaching staff, future clients, students, institutions and the evaluator.

EVALUATION OF THE FINAL EXAMINATION

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INTRODUCTION

'It has become part of the mythology of New Zealand academics that students were to blame for the introduction of internal assessment' (Franks, 1979: 160). He points out that the New Zealand University Students Association had adopted the policy that a student should be able to qualify for a degree either by internal (or in-course) assessment, by formal examination or by a combination of both, by whichever method is to the advantage of the student (NZUSA, 1972). However, who is culpable is beside the point that academic staff are professionally responsible for using in-course assessment and/or the final (end-course) examination to make judgements, in the form of grades, about student ability and achievement.

Assessment is deemed to imply that the student might be given some feed-back with a view to improving subsequent performance in the course. Thus student marks might be expected to show an improvement during a course (all other things being equal). Although there is widespread use of in-course assessment, the final examination still plays a major role in measuring performance and judging ability. When used in conjunction with in-course assessment, there is a need for professional judgement when combining marks (Isaacs and Imrie, 1981).

Isaacs and Imrie (1981) draw attention to the significance of the work of Fowles (1974) who showed conclusively that both standard deviation and correlation should be taken into account when combining marks and when interpreting the ranking of composite marks. Fowles's procedures will be discussed later. Similar considerations and different forms of assessment, examination and grading, are also discussed by Terwilliger (1971, 1977) and by Clift and Imrie (1981).

It is invariably the case - justified, perhaps, by one exception (Engel et al., 1980) - that the grade is the only feedback that the student (as 'candidate') receives from the final examination. The examination, however, is part of the course and should be evaluated as such. Accordingly, this paper considers matters such as difficulty and time, fairness and validity of examinations, as perceived by students (Imrie, 1979a). For the teacher as examiner, these are matters relevant to the performance of the teacher.

If the design of the examination paper is faulty, e.g., with reference to 'equal' difficulty of questions and/or time allowed for the paper, or if the marking is inconsistent or inaccurate, then student performance will be adversely affected. Such measurement errors are directly the responsibility of the teacher as examiner or as moderator if, indeed, one has been appointed.

This paper discusses the significance of evaluation and moderation of the final examination with reference to two cases - a fourth year course in Architecture and a graduate course in Education. These are examples of intentional evaluation (Clift and Imrie, 1980) in that the aim is to involve the teacher/examiner in learning from the experience so that improvements can be made as appropriate.

SOME SPECIFIC CONSIDERATIONS

For a student, the final examination is usually the last important work experience of a course of study. The teacher, who is also the examiner, then marks the student papers and, eventually, a decision is published. The published statement usually conveys the following information (in decreasing order of importance):

(a) whether the student has passed or failed;

(b) the ranking of the student (performance) with reference to grades, honours or position in class;

(c) the level of achievement notionally indicated by the grade (broad band) or, occasionally, a score or a percentage mark.

If a course, or teacher/examiner performance, is to be evaluated validly and systematically, then student experience is an essential accessible source of information. Examinations, as part of the course requirements, have a signal effect on student learning and a considerable influence on student response to courses (Himmelweit, 1967; Elton and Laurillard, 1979). There is little doubt that students are strongly motivated to work (swot) for a final examination and there is often considerable stress involved (Swatland, 1979). Accordingly, student perceptions of a course can and do change as a result of the experience of the final examination.

However, most course evaluations which utilise student opinion, are carried out before students sit the final examination or know the results. Either of these experiences can influence student opinion. Evaluation of the final examination should be part of the course evaluation and should include student perceptions of the design of the examinations and the nature of the questions.

An examination paper might be perceived as 'not fair' for reasons other than the content of the paper, e.g., the form of examination, the type of question, and the amount of work required in the time available. Most final examinations are traditional, i.e., closed book, paper unseen, two or three hours limited time.

Time is a key factor (Clift and Imrie, 1981) in considering the difficulty a student encounters when tackling an examination question. Indeed, examiners are instructed that 'papers should not be too long to give candidates reasonable time for thinking out and writing their answers. Candidates are not allowed extra or special time to read the questions.' (VUW, 1981). Examination questions might be deemed (designed?) to be equally difficult by the teacher as examiner, but perceived to vary in difficulty (time taken to answer) by the student as candidate. The examination as a measure of student performance is then less than satisfactory; evaluation can provide essential information without which judgement of student performance would be deficient.

Evaluation of an examination paper can be arranged as part of the examination (Imrie, 1979a) or in the form of a take-away questionnaire, the latter usually producing a lower response rate. One of the cases discussed in this paper, used a take-away questionnaire.

WEIGHTING FOR JUDGEMENT

When marks are combined, it is usually on the basis of predetermined proportions or weightings of the different component marks. There are three areas of particular interest. The first is when marks of student performance in different subjects are to be combined for the award of prizes or scholarships. Fowles (1974) uses the 'case history' of Hardgrind (AMA, 1958) to illustrate the effect of spread (or standard deviation) on ranking when such marks are combined. Her work does not seem to have been available to other writers such as Palmer (1974), Murgatroyd (1975) and Squire (1978), who have tackled related problems without the benefit of her analytical insights.

The second area of interest is when in-course assessment is used in conjunction with final examination(s), and the different components of assessment are weighted for combining into an overall grade or mark for the course. This is discussed in detail by Isaacs and Imrie (1980) with reference to the work of Fowles (1974).

The third area, and relevant to this paper, is when the mark of a final examination is obtained by combining marks from answers to questions of predetermined difficulty or weight. For example, if the teacher/examiner considers questions to be of equal difficulty, then they will be equally weighted; the student/candidate, on being informed that the questions are equally weighted (in terms of marks and/or time), might then infer equal difficulty. If examination evaluation includes student perception of difficulty, there can be post-examination adjustment of the 'planned' weighting, which is likely to be more valid than the 'fiddling' of marks, openly discussed among staff (Imrie, 1979b).

PLANNED AND ACHIEVED WEIGHTS

For all the above considerations of mark combination, the work of Fowles (1974) is very important for evaluation of the final examination with reference to the relationships and distributions of the component marks, and to the interpretation of the significance of the composite mark for ranking. Her explanation of the analysis (with my additions in parenthesis) is:

> The actual influence of a component, or its 'achieved weight', although primarily determined by the proportion of marks allocated to it on the basis of its planned weight, is also affected by two other factors. The more important of these is the way in which the mark scale has been used: if candidates' marks on one paper (or examination question) are bunched together far more closely than their marks on another paper (or question), the influence of the first paper (or question) will be much reduced, i.e., the achieved weight of the paper (or question) will be substantially lower than its planned weight. The second factor is the extent to which each component is measuring the same thing as the other components. (Fowles, 1974: 52)

A measure of the first factor is the variance of the distribution of scores for each component and for the total score. The standard deviation(s), or square root of the variance, is convenient for consideration of this factor.

A measure of the second factor is the correlation (r) as a measure of degree of relationship (ranking) between the candidates' component scores and total scores.

If the total score $T = X_1 + X_2 + X_3 + \text{--}$

where X is the mark scale (or planned weighting) for each component (e.g., $X_1 = 40$, $X_2 = 30$, $X_3 = 30$), then $T = 100$ for three components only.

For any number (k) of components, $T = \sum_{i=1}^{k} X_i$

Let s_T be the standard deviation of the total score

s_i be the standard deviation of component i scores (i=1,k)

r_{iT} be the correlation between component and total scores

then, total score variance, $s_T^2 = \sum_{i=1}^{k} r_{iT}\, s_i\, s_T$

$$\text{or} \quad s_T = \sum_{i=1}^{k} r_{iT}\, s_i$$

and the achieved weight of component i, is given by $\dfrac{r_{iT}\, s_i}{s_T}$

For the component questions of the final examination, the design intentions of the examiner can be checked by considering the difference between the 'planned weights' and the 'achieved weights' (Fowles, 1974). Willmott and Hall (1975) use 'nominal weights' and 'effective weights' respectively, in accordance with Terwilliger and Anderson (1969). Terwilliger (1971) asserts that the correlation factor cannot be accounted for, but Fowles (1974) gives details of an iteration procedure to ensure correspondence between the achieved and planned weights.

Evaluation of the final examination can thus provide information for the adjustment and interpretation of marks which are to be combined; or, in the case of in-course assessment used in conjunction with the final examination, the combination or association of component scores (Isaacs and Imrie, 1981).

MODERATION IN ALL THINGS

Moderation of examinations is used to refer to well-established professional procedures which provide for the scrutiny and maintenance of standards in the principal matters of examining, viz.,

(a) the design of the examination, the setting of the questions, and the preparation of model solutions and marking schedules (including the planned weighting);

(b) the marking of the student papers and decisions about student performance, e.g., grade awards.

Moderation, therefore, should include procedures of examination evaluation as outlined above. The second case discussed in this paper, deals particularly with the significance of moderation in the form of external assessment.

CASE 1 - A FOURTH YEAR ARCHITECTURE COURSE

The class size was 25. During the course, students did four assignments, each scored out of 15, contributing to a course work total (C) of 60. The final examination contributed a total (E) of 40 (%) to the overall assessment (T) of the student. The examination comprised eight questions (with equal planned weighting) arranged in four pairs. Students were required to answer one from each pair, i.e., four questions in three hours. Students were advised that each pair of questions corresponded to one of the four areas of the course covered by the assignments.

A complete set of scores for the course work assignments and for the examination questions is given in Fig. 1, together with total marks and other information.

On completing the examination, each student received a questionnaire; 19 responses (76%) were received. Fig. 2 gives the responses from students who were asked to

> give your opinion of the difficulty of each question attempted and of the paper 'as a whole'.

Responses are given in percentages together with the lecturer's prediction (*) of the maximum response. An 'index' of difficulty is calculated on the basis of numbers 1-5 assigned to the scale as shown.

Clearly, although the planned weighting was the same for each question, the students perceived them as being of different difficulty. The student ranking of difficulty, and difficulty index, are given in Fig. 3 together with the lecturer's/examiner's ranking of difficulty determined after the examination. An indication of difficulty might also be obtained from appraisal of the mean score for each question; the mean score and difficulty ranking are also given in Fig. 3.

The correlation between the difficulty index and the mean score is r = -0.91, i.e., a strong probability that the more difficult the question (as perceived by students who attempted it), the lower the mean score. There is much less correspondence between the lecturer's prediction of difficulty and student experience. When student papers are marked and the marks combined, should difficulty variation be taken into account, in some considered way?

Assuming that Questions 7 and 8 might have been tackled last, with time running out, there might have been some consequential feeling that these questions were the most difficult. On the whole, however, time did not seem to be a major consideration for this examination, in terms of the class response (N = 19) to:

The time allowed for the examination was
far too long - 11%
too long - 32%
about right - 42%
too short - 16%
far too short - 0

The paper 'as a whole' was judged by the students to be slightly easier than *'the right standard'*. One student, who thought that the examination was *'easy'* and that the time allowed was *'far too long'*, also commented, *'mind you, I didn't go for better marks so I could have spent longer.'* (This student's estimate of examination mark (63%) was 65%.)

Apart from considerations of 'difficulty' and 'time', students have strong opinions about the 'fairness' of an examination; evaluation of this aspect of the examination produced the following response:

(a) 14 out of 15 students thought that the examination 'as a whole' was fair;

(b) 10 out of 15 students thought that the examination 'as a whole' adequately covered the lecture course;

(c) 14 out of 17 students thought that the examination 'as a whole' was a valid test of competency with reference to the content of the course.

The students were able to discriminate between the three descriptions underlined, in their responses.

Another aspect of examination evaluation is consideration of the implications of combining the marks of these Architecture students: the four assignments were combined to give a course work total (C), and the course work (C) was combined with the examination (E) to give a course total (T) for award of a final grade.

Fig. 1 shows the marks for the four assignments, with a planned weight of 15 (or 25%) each, giving a planned weight of 60 for the course work total (C). Fig. 4 shows the application of Fowles's (1974) procedure to determine the difference (D) between the achieved weights and the planned weights. The value of D (= 7.7%) indicates that only a small number of ranking positions will be affected by adjusting the component scores to correspond to the planned weights. (Fowles's (1974) paper suggests that a value of D = 10% would indicate that approximately 15% of candidates would change grade if achieved weights were made equal to planned weights.

Fig. 5 shows the same procedure applied to the combination of course work (C) and examination (E) scores. Here D (= 20.7%) is much larger, reflecting the much larger ratio (80.7:19.3) of the actual or achieved weights, compared with the planned weights (60:40); i.e., the course work ranking has much greater significance than the examination ranking. This is also apparent from inspection of the correlations:

Course work (C) with Total (T)	$C^{r}T = 0.96$
Examination (E) with Total (T)	$E^{r}T = 0.63$
Course work (C) with Examination (E)	$C^{r}E = 0.38$

This outcome might not have been the intention of the examiner. The information obtained from evaluation now makes it possible for the examiner to moderate the combination and interpretation of marks associated with student performance.

CASE 2 - A GRADUATE EDUCATION COURSE

The class size was 14. Evaluation of the final examination took the form of external assessment of student scripts. The final examination contributed 25%, and in-course assessment 75%, to the overall assessment of student performance.

The examination paper consisted of three compulsory questions; time allowed three hours. Thirteen examination scripts were marked by both the Examiner (E) and the Assessor (A). These scores for Question 1 (out of 40 - the planned weight) and for Questions 2 and 3 (out of 30 each) are given in Fig. 6 together with derived data for interpretation.

The following points are significant:

(1) Question 1 had included guidelines which clearly influenced student responses; however, the marking schedule emphasised other aspects of the question. The second marking (A), with specific reference to the question, produced a higher mean (27.5) and a lower standard deviation (5.5).

(2) Question 3 produced a more explicit difference between the examination question and the marking schedule. The question began

> *List and discuss procedures and methods appropriate for determining the relationship between......* (underline added)

The marking schedule considered only procedures and methods appropriate for 'expressing' the relationship. Apart from the consequences of this mismatch between this (last) question and the marking schedule, it was apparent from the scripts that the performance of some students had been affected adversely by lack of time.

(3) Fig. 7 illustrates the application of Fowles's (1974) procedure to determine the difference (D) between the planned and achieved weights for the Examiner's marks (E) and the Assessor's marks (A). Moderation, in the form of external assessment based on a revised marking schedule, has reduced the difference, D, from 15.4 to 6.6.

(4) After discussion between the Examiner and the Assessor, it was agreed that a more valid assessment of student performance in this final examination, would be obtained by discarding the scores for Question 3 and considering the approximate mean of marks (E) and (A) for Questions 1 and 2 only. The revised marks are given in Fig. 8, which also shows the difference (D) between the achieved and planned weights.

(5) The 'final' set of marks for this examination corresponds to a difference (D) of 3.4% between the planned and achieved weights. This difference will affect only one or two ranking positions, at most.

This case has illustrated the significance of evaluation of the final examination by external assessment, and by ascertaining the difference between achieved weights and planned weights. Some problems associated with the performance of the teacher/examiner were overcome to produce a more informed judgement of student performance.

With both of the cases considered (small classes and in-course assessment), the teacher undoubtedly knows the class reasonably well and, during the course, forms an opinion of individual abilities and of the class 'level'. In the second case, external assessment helps to offset this 'impression' effect described by Murgatroyd (1975) as 'not only do the examiners calibrate the students, the students also calibrate the examiners'.

CONCLUDING COMMENTS

Isaacs and Imrie (1981) posed a generalisation as a question when they asked, 'Why is it that when there is failure we blame the students, but when they pass we suspect the assessment methods?' In partial response to that question, this paper has used two case studies to illustrate the potential of examination evaluation to improve the judgement of student performance. The implications for teacher/examiner performance have also been discussed.

The principal focus of the paper has been the application of the work of Fowles (1974), in determining the differences between the achieved weights and planned weights when sets of component scores or marks are combined to give an overall measure of student performance. The principles involved have a primary effect on rank position and a secondary effect on mark level. Considerations of mark level with reference to predetermined constants such as pass/fail and grade boundaries, are discussed elsewhere, e.g., Isaacs and Imrie (1981), Terwilliger (1977) and Willmott and Hall (1975).

Another consideration not dealt with in this paper but with some relevance to the first case study is the effect of question choice on student performance. This is discussed in detail by Willmott and Hall (1975). They also make the following particular point of distinguishing between the *combination* of marks and the *association* of marks, i.e., between a composite total and a performance profile:

> *(For) 'any examination which is based on a composite total from two or more relatively uncorrelated (say $r < 0.4$) assessments, it is justifiable to argue that more information on the performance of candidates can be obtained from a profile of the assessments than from a grade based on the composite total.'*
> (My addition in parenthesis)

There are two principal considerations for the evaluation of the final examination. The first is systematic evaluation of student experience of the examination by questionnaire or rating form. Since student perceptions should be sampled as soon as possible after the event, it is suggested that the rating form be incorporated in the examination paper with due allowance made for the time required for completion (Imrie, 1979a). In this way information about difficulty, question sequence, time, fairness, etc., can be obtained.

The second evaluation consideration is the explicit determination of measures of mark distribution and association. Whether for question components within the final examination, or for the examination itself as a component to be combined with other measures of performance, the rational combination of component marks requires detailed consideration to be given to the effects of standard deviation and correlation. Since most teachers/examiners are oblivious of these effects, it could be argued that they are unprofessional in the discharge of one of their prime educational responsibilities - judgement of student performance. (Fiddling is a pastime for amateurs.) Appropriate standards of excellence in such decision-making require training in the skills of managing the complex processes of assessment and examination. If evaluation of the final examination is not used, it is likely that teacher/ examiner performance will be deficient.

One final point concerning examination evaluation is relevant to this Conference, if only indirectly to this paper.

Examination performance also has significance for educational research but evaluation of examination information is invariably absent from the research publications. Yet, for example, Dubin and Taveggia (1968), from inspection of more than a hundred studies of the effectiveness of various methods of college teaching, concluded that

> These data demonstrate clearly and unequivocally that there is no measurable difference among truly distinctive methods of college instruction when evaluated by student performance on final examinations.

In the sense that 'education is what is left after you have forgotten what you needed to pass the final examination', perhaps what is needed is more residue research - evaluation of the residue (i.e., education) discussed by Powell (1980) at last year's HERDSA Conference. A recent example of such research (on long-term retention) is that of Watson and Byars (1980).

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Fig. 1. Course work and examination scores

Weight	(15)				(60)	(25)								(40)	(100)	
	Course work (C) Assignments				Total	Examination Questions (E)								Total	Total	
Student	1	2	3	4	C	1	2	3	4	5	6	7	8	E	T = C + E	Grade
A	8	9	11	11	39	19		20			18		17	29	68	B1
B	8	8	8	14	38		18		15	15			17	26	64	B2
C	6	8	10	10	34		15		12		17		12	22	56	C
D	12	14	13	12	51		17		11	20			19	26	77	A
E	13	14	14	14	55	20		15			16		18	27	82	A
F	13	13	10	14	50	20		19			18		14	28	78	A
G	9	9	9	13	40	17			15		15		16	25	65	B2
H	8	12	12	11	43		17	19		19			15	28	71	B1
I	12	12	14	12	50		17		16		18		12	25	75	A
J	6	12	13	8	39	17			17	10			12	22	61	B2
K	9	14	14	14	51	18		17			18		6	23	74	B1
L	9	10	13	10	42		16		14		17	10		22	64	B2
M	8	8	11	8	35		17	15		19			13	25	60	B2
N	7	9	13	12	41	16		13		20			15	25	66	B2
O	10	13	12	12	47		19		12		15		13	23	70	B1
P	8	7	10	9	34		16	19		14		12		24	58	C
Q	10	10	13	8	41		17		17		16		11	24	65	B2
R	11	9	11	11	42		19		19		20	6		25	67	B2
S	8	9	8	12	37		17	19			19		16	28	65	B2
T	14	10	14	14	52	20		17			16		12	26	78	A
U	8	8	9	9	34		16	15			8	12		20	54	C
V	8	9	10	9	36		15	20		20			8	25	61	B2
W	6	8	11	8	33	14			14	16			6	20	53	C
Mean $\bar{x}$	9.2	10.2	11.4	11.1	41.9	17.8	16.8	17.3	14.7	17.0	16.5	10.0	13.3	24.7	66.6	
S.D. s	2.28	2.20	1.91	2.10	6.62									2.42	7.88	

Fig. 2. Evaluation of difficulty of examination questions

Question	*No. of students*	*Very difficult (5)*	*Difficult (4)*	*About the right standard (3)*	*Easy (2)*	*Very easy (1)*	*SCALE INDEX*
1	8	-	-	88	12*	-	*(2.88)*
2	11	-	-	64	36*	-	*(2.64)*
3	11	-	18*	45	36	-	*(2.82)*
4	8	-	38*	50	12	-	*(3.25)*
5	8	-	12	50*	38	-	*(2.75)*
6	11	-	18	82*	-	-	*(3.18)*
7	4	25	25	50*	-	-	*(3.75)*
8	15	13	47	27*	13	-	*(3.60)*
Paper as 'a whole'		-	30	40*	20	10	*(2.9)*

Fig. 3. Difficulty ranking

Question Number	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
Mean Score (/25)	17.8	16.8	17.3	14.7	17.0	16.5	10.0	13.3
Difficulty (Score)	8	5	7	3	6	4	1	2
Scale Index (Fig. 2)	2.88	2.64	2.82	3.25	2.75	3.18	3.75	3.60
Difficulty (Students)	5	8	6	3	7	4	1	2
Difficulty (Lecturer)	8	7	5	6	4	1	3	2

Fig. 4. Achieved and planned weights for course work components

Component	*Standard deviation (s)*	*Correlation with Total (r)*	*Product (r x s)*	*Achieved weight (%)*	*Planned weight (%)*	*Difference (achieved - planned)*
1	2.28	0.84	1.92	29.1	25	+ 4.1
2	2.20	0.86	1.89	28.6	25	+ 3.6
3	1.91	0.67	1.28	19.4	25	- 5.6
4	2.10	0.72	1.51	22.9	25	- 2.1
		s_T =	6.60		D =	7.7%

Fig. 5. Combination of course work (C) and examination (E)

Component	*Standard deviation (s)*	*Correlation with Total (r)*	*Product (r × s)*	*Achieved weight (%)*	*Planned weight (%)*	*Difference (achieved - planned)*
C	6.62	0.96	6.36	80.7	60	+ 20.7
E	2.42	0.63	1.52	19.3	40	- 20.7
		s_T =	7.88		D =	20.7%

Fig. 6. **Examiner and Assessor Scores**

Student	(40) Q.1 E/A	(30) Q.2 E/A	(30) Q.3 E/A	(100) Total (T) E/A
A	14/25	9/15	0/8	23/48
B	12/20	16/18	8/8	36/46
C	19/25	13/18	8/8	40/51
D	26/30	16/20	8/8	50/58
E	18/22	12/20	12/12	42/54
F	20/30	21/25	21/21	62/76
G	33/35	19/24	13/15	65/74
H	27/35	22/27	24/24	73/86
I	25/35	21/23	14/14	60/72
J	28/33	14/17	0/8	42/58
K	14/25	15/20	3/9	32/54
L	18/20	11/12	0/5	29/37
M	20/23	14/18	3/15	37/56
Mean, $\bar{x}$	21.1/27.5	15.6/19.8	8.80/11.9	45.5/59.2
S.D. s	6.03/5.50	3.93/4.00	7.52/5.44	14.73/13.38
Correlation r (With total)	0.74/0.85	0.91/0.95	0.89/0.90	

Fig. 7. **Weighting Differences for Examiner's and Assessor's Marks**

Component	*Standard deviation* *(s)* *E/A*	*Correlation with total* *(r)* *E/A*	*Product* *(r x s)* *E/A*	*Achieved weight* *%* *E/A*	*Planned weight* *%*	*Difference (Achieved - Planned)* *E/A*
1	6.03/5.50	0.74/0.85	4.46/4.68	30.3/35.0	40	-9.7/-5.0
2	3.93/4.00	0.91/0.95	3.58/3.80	24.3/28.4	30	-5.7/-1.6
3	7.52/5.44	0.89/0.90	6.69/4.90	45.4/36.6	30	+15.4/+6.6
			s_T = 14.73/13.38			D = 15.4/6.6%

Fig. 8. Revised Marks

	(60)	(40)	(100)
Student	*Q.1*	*Q.2*	*T*
A	29	16	45
B	24	23	47
C	33	21	54
D	42	24	66
E	30	21	51
F	38	31	69
G	51	29	80
H	46	33	79
I	45	29	74
J	46	21	67
K	29	23	52
L	28	15	43
M	32	21	53
$\overline{X}$	36.4	23.6	60.0
s	8.37	5.27	12.53
$_{x}r_{T}$	0.95	0.87	
Ach. Wt.	63.4%	36.6%	
Plan. Wt.	60%	40%	
Diff. D	+ 3.4%	- 3.4%	

WORKSHOP ON EVALUATIVE SKILLS

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PREAMBLE

This workshop was designed to acquaint interested people with the activities in a pilot Workshop on Evaluative Skills recently held in Sydney, explain how it was conducted, and provide an opportunity to work through some of the materials. A brief summary follows.

INTRODUCTION

The Higher Education Research and Development Society of Australasia sponsored a three-day Workshop on Evaluation Skills for senior staff in tertiary education at the University of Sydney, 4 - 6 May 1981. The Tertiary Education Commission provided funds for the workshop, and a T.E.C. representative participated. There were in all 21 participants who came in response to invitations directed to tertiary institutions in the Sydney area. Each invitation to an institution called for either two or three representatives, at least one of whom was to be a senior academic at dean, head-of-school, or head-of-department level.

HERDSA invited Professor Ernest Roe, Director of the Tertiary Education Institute, University of Queensland, and Dr Rod McDonald, Director of the Educational Services and Teaching Resources Unit, Murdoch University, to conduct the workshop.

Fundamental to the conception of the workshop was the conviction that, if evaluation of what happens in higher education is to be undertaken, such evaluation should be carefully, skilfully and responsibly done; and that therefore the more widely knowledge and skills relevant to evaluation can be disseminated the better. A great deal of evaluation has always occurred, but it has tended to be an unsystematic, spasmodic, and even an unconscious process. With increasing pressures for accountability, the process must continue to become more conscious and more systematic.

Behind the selection of participants was the notion that senior academics ought to acquire both evaluative skills and an understanding of the complex issues related to evaluation as a process; and that if they were too senior to carry out evaluations themselves, they should at least be equipped to encourage and supervise others. They might also be expected to promote the development of evaluation skills in their own institutions. Thus, in planning for the workshop, a great deal of emphasis was placed on helping participants to develop strategies and procedures which would be of actual use to them on their return to their various universities and colleges.

The approach was essentially pragmatic. As the original statement announcing the workshop stated:

> "The organisers are not only aware of the importance of evaluation; they are also fully conscious of the institutional constraints, such as complex situations, psychological resistance, time factors, differences between disciplines. They also appreciate the need to cut through the complexities of evaluation theories in order to achieve practical results ... The aims of the workshop might be summarised, not altogether facetiously, as "how to do a reputable evaluation without devoting too much time to it" and "what to do with an evaluation once you've got it."

THE WORKSHOP PROGRAMME

A major focus was the creation of an extensive file of materials for the use of potential evaluators. It contained basic material about approaches to evaluation and the different levels (course unit, degree course, teaching, individual performance overall, department, institution); also about dissemination of evaluative information and about the 'politics' of evaluation. Much of this material was written by the leaders, and supported by illustrative examples drawn from a variety of sources. A substantial part of the file was devoted to ways of obtaining evaluative information, and many examples of instruments or techniques for doing so were appended.

Participants used this file during the workshop. It also included a number of exercises, devised by the leaders, designed to raise significant issues concerning evaluation as well as to teach some of the basic skills.

On the first morning Professor Sir Bruce Williams, Vice-Chancellor of the University of Sydney, officially opened the workshop. After some introductory presentation by the leaders, the 21 participants divided into groups for an exercise involving discussions of a collection of evaluative information; there were two parallel exercises, the papers for one being about a staff member, for the other about a course unit. This was followed by a plenary session in which the leaders introduced, with examples, a wide range of methods of obtaining evaluative information. A further exercise then required them to read and discuss a case study concerned with a particular department, and choose appropriate instruments for getting the required evaluative information. A brief introduction to 'planning an evaluation' followed. Participants were asked to evaluate Day 1 of the workshop and, in particular, to consider what they felt was being neglected and whether any change of direction was needed.

The whole of Day 1 had been designed to prepare participants for a major exercise occupying most of Day 2. The day began with an introduction to the file of materials and its use. Participants then worked on an evaluation plan appropriate for putting into effect in their own institutions. They worked in groups of varying size, some in pairs, some at times individually, as they chose. Early in the afternoon each was given a pro forma on which to enter a summary of his/her plan, so that all participants could have some knowledge of all plans which had been generated. During this exercise, which lasted most of the day, the leaders moved from group to group, giving advice, answering questions, or simply listing, as appropriate. For the last hour of the day, Professor Roe introduced participants to the 'comprehensive plan for the evaluation of teaching' which Dr Harry Murray of the University of Western Ontario had produced for use by the University of Queensland while spending his sabbatical leave there in 1979-80.

Day 3 began with a post-morten on the major exercise of Day 2, and participants raised major issues, concerns or difficulties they had encountered. The remainder of the morning was devoted to the dissemination of evaluative information and the question of 'audiences'; it included an exercise requiring scrutiny of a number of different evaluative reports written about the same set of evaluative information. The leaders also presented some illustrative case study material, and did so again in the afternoon when the main topic was the politics of evaluation. This included discussion not only of problems of resistance to evaluation, but of a variety of moral or ethical issues. Finally, each participant was aksed what action he/she hoped or expected to take in his/her own institution as a consequence of the workshop.

FURTHER DEVELOPMENTS

This workshop was envisaged as a pilot which might be the fore-runner of others. Following its success, the T.E.C. has resolved to fund the workshop in four other capital cities during 1980/81: Melbourne, Adelaide, Brisbane and Perth.

STUDENTS TEACH STUDENTS

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INTRODUCTION

1. Structures of Study at the Federal Armed Forces University

The course in "Pedagogy" for the officers studying at the Federal Armed Forces University, (FAFU) in Hamburg involves particular didactic problems. The bases of these are the structural conditions of study at these universities which are particularly characterized by the following features:

- appointed periods of study: this demands that the course of study must be completed within the prescribed period of three and a half years;
- the cycle of four terms: this means that the academic year is divided into four three months terms of which three consist of classes and the fourth of fieldwork, independent study and vacations;
- the concept of working in small groups: this means that the study periods should, where possible, be conducted in groups of 25 students at the most;
- previous military experience: this demands that the students have completed a fifteen month period of military training and socialisation, terminating in an officers' qualifying examination, before entering into the course of study.
- fixed career prospects: that is that the students are either short service officers for 12 years, or they are to become permanent officers.

2. Aspects of the Student's behaviour.

Out of these structural conditions, the following elements based on research into the didactics of higher education, are clearly discernible in the students' behaviour: high drop-out rates, rigorous and exacting demands of performance, misgivings as to the aims of the programme, little independent study and lacking study skills, tendencies towards subordination rather than independence, lack of suitability in the material taught, and discrepancies between student expectations and teacher's demands. These characteristics are also found in other universities, however they appear to be markedly more distinct in the FAFU, and, considering the importance of study, are more portentous since failure in the field of study will mean a failure in the students' future career.

Thus, right at the outset of the course of study, the question arises as to what should be selected for the introductory study periods with regard to content, aims, methods and means, and what specific help can be given at the beginning of the course of study with regard to study skills.

3. Introduction to the Study of Pedagogy

There are numerous studies, research reports, and material regarding the effectiveness of different learning strategies for the study of pedagogy and study techniques. However, speculative theories concerning procedural methods are very diverse in their assertions.

On the one hand, an immediate start in the reading of theoretical texts is suggested, on the other beginning with the classification of basic pedagogic terms is recommended, along with the earliest possible contact with practical application; besides this, a combination of these possibilities is advised, and then again it is recommended to make the decision regarding the instructional content largely dependent on the students' needs. The aforementioned proceedings, moreover, entirely disregard the specific conditions of study at the FAFU, so that suggestions regarding the structure of the introductory course in pedagogy and study techniques only allow diversion to a very minor degree.

4. Content and Aims of the Introductory Period of Study

It is therefore necessary to counteract this mentioned behaviour in good time by suitable didactic means in the earliest stage of study. Applying these considerations to the introductory period of study in pedagogy, the following content and aims arise:

(a) Motivation and interest: the students should aquire an interest in the subject and they should question and be able to find their interest. Guidance and information as to the nature of employment and career prospects and as to further education, higher qualifications as well as professional alternatives can serve this purpose.

(b) Practical orientation: the students should be acquainted with the information aids necessary for their studies. They should be trained in the following study skills: time management, examination, library skills, writing papers, compiling bibliographies etc.

(c) Theoretical orientation: the students should be introduced into problems and methods of pedagogy. This can be brought about as a result of case studies, various scholarly theories, and basic pedagogic terminology such as education, curriculum, didactics and so on.

(d) Aids to acclimatisation: the students should develop confidence in criticism and their own opinions, and they must also learn an appropriate academic behaviour in the field of science. Strategies include the use of simulation games and role-playing requiring the active participation of all members of the group, and leading to a friendly seminar atmosphere through frankly discussing individual's feelings, fears, misgivings and anxieties.

QUESTIONING OF THE PROJECT: HYPOTHESES

1. The Problem and Questioning

Experience of these introductory periods of study have hitherto shown that the students as a rule were discontented and disappointed, clearly because their specific needs and difficulties as freshmen had not been adequately taken into consideration. Even when the content of the seminars was considerably adapted to suit the students' needs and interests, the assessment results did not show a significant improvement in the students' satisfaction. It was therefore felt advisable to alter not only the content and methods used in the study periods, but also to experiment with the teaching staff, which meant in this case that an older student, in German called "tutor", should take over the functions of the lecturer and lead the introductory study periods independently. The underlying assumption was that a "tutor", himself still in the situation of a student, is in a substantially better position than a lecturer to understand the freshmens' problems with learning and studying and to take these into consideration since the lecturer is out of touch with the situation of a student. Thus the project was entitled "Students Teach Students", and was intended to provide an answer to the question of whether, and to what extent and older student/"tutor", is a better teacher than a lecturer in the course entitled "Introduction to Pedagogy and Study Skills".

2. Hypotheses

Subject to the given content and aims, the project identified three factors for which answers were to be sought with the help of empirical methods of research:

(a) Group atmosphere: this concerns the relations among participants, the relationship between teacher and students, and the atmosphere of the actual seminar.

(b) Material: this principally concerns the content of the course: selecting, structuring and teaching the material.

(c) Students: this part concerns the extent to which the students' basic knowledge and interests are considered, whether they actively participate and whether they report back as to how successfully they have learned.

The following hypotheses were formulated regarding these factors:

(a) Group atmosphere:

- the distance between teacher and the students is lessened when the seminar is held by a "tutor", who encourages a congenial relationship with the participants.
- A "tutor's" behaviour (including for example speaking to the students in familiar terms, referring to his own course of study, his equal status with a student) effects a relaxed and friendly atmosphere.

(b) Material:

- The content selected by a "tutor" is more likely to consider the freshmens' basic knowledge and interests.
- A "tutor's" material is more markedly structured towards its practical application and suitability.
- A "tutor" is in a better position to formulate the material comprehensibly with the use of examples taken from his own experience.

(c) Students:

- In his presentation of the material, the "tutor" is better able to go into the freshmens' basic knowledge and interests.
- A "tutor" can attain a higher degree of acceptability, good feedback, and active participation and interest by virtue of his similar status and congeniality with the students.

METHODS & PROCEDURE: COLLECTION OF DATA

On average, seminars were composed of 17 students of pedagogy from the 1980 intake. 6 sessions out of a total of nine were evaluated. Of these, four were were held by the "tutor" and two by the lecturer. The "tutor" was a student of pedagogy. At the time the project was being conducted, he had been studying for two years and had completed the first part of his programme. In order to be able to compare the behaviour of the "tutor" with that of the lecturer when teaching, the following procedures were applied:

1. Standardized questionnaire

An extract from an university course evaluation questionnaire, drafted and validated by the Centre of Higher Education of FAFU Munich was used, which may be regarded as sufficiently reliable and converselv verifiable (see appendix and references). At the end of every seminar this questionnaire was handed out and filled in by the students.

2. Participant observation

From time to time, this was undertaken by the uninvolved seminar leader. The observation was not based on any structural observation method. The results were discussed and evaluated at the end of the sessions.

3. Non-standardized questioning

At the end of the seminar, the students were asked to criticise the teaching on the whole with regard to content, atmosphere, leading the seminars, methods etc.

4. Statistical significance and evaluation

For every seminar held by a lecturer or a "tutor", the mean value of each individual question was calculated and then this was summed up in a collective mean. Similarly, the mean value of every group of questions was calculated, and was also summed up in a collective mean (for further information, see table 1). To check the corresponding means for significant variation, the t-test was employed.

RESULTS: TESTING THE HYPOTHESIS

(Table 1 provides a summary of the results of the questionnaire).

1. Group Atmosphere

The atmosphere in the group work (questions 9,10,11) was rated higher with the "tutor" (1,33) than with the lecturer (1,48), however no statistically significant differences were identified. Neither in the data, nor the seminar observation, nor in the evaluation of the written criticisms of seminars are criteria for differences in the seminar atmosphere to be found. The assumption that relaxed behaviour on the part of the "tutor" aimed at creating a feeling of partnership, effects a more pleasant and relaxed atmosphere was of empirically proven in this inquiry.

Since the lecturer in question prefers a congenial seminar atmosphere, it would seem more probable that student fellow-feeling, addressing one another in familiar terms, references to the "tutor's" own course of study, and his equal status, do not affect the atmosphere if the lecturer includes group activities in the structure of the seminar as an important factor, and attempts to positively encourage spontaneous participation, acceptance of the teacher as a partner, etc.

2. Material

With regard to the material (questions 1,3,5,7,8), as a whole, no significant variances were found. (1,88 against 1,83). However, there is significant variance in answer to two of these questions.

In response to question one, ("The teacher gave us hints and applications for the practical use of the subject"), the importance was significantly higher with the lecturer (1,48) than with the "tutor" (1,93) on average. The hypotheses that the material used by a student tutor would be more markedly along the lines of practical application and suitability - because he is more closely related to the material due to his contemporaneous work-related experiences, and because his classifications are more closely related to the practical application - proved to be wrong. The lecturer's advantage in both knowledge and experience is clearly acknowledged and highly valuated by the students.

In this context one assumes that the lecturer has a higher credibility due to his official authority, and this credibility had a significant influence on its questionnaire ratings,(contrary to the observation and the written seminar criticism). It must remain an open question whether the high regard for official authority is a general feeling in educational institutions or whether it is a particular characteristic of student officers, who appear to be more readily orientated to authoritarian patterns of behaviour due to their socialisation.

Another statistically significant difference in the questionnaire responses was found in question 8: the freshmen judged the facilitated comprehension of new topics, through reference to and use of their basic knowledge, more positively with the "tutor" (1,99) than with the lecturer (2,34). This result supports the hypotheses that the older student is in a better position to facilitate the comprehension of the material with the use of example from his own work-experience.

An explanation for these widely differing ratings may be that the lecturer is more highly rated with the material concerning the future, whereas the "tutor" is obviously more competent when it comes to relating the content to what is already known or has already been covered in their studies.

3. Students

The result of this group of questions (numbers 2,4,6,12,13) indicates that the "tutor" is significantly more highly rated (1,61 against 1,92). This then supports the central hypotheses of the congenial relationship between "tutor" and students which affects a higher degree of acceptability, good feedback, active participation and interest in the freshmen. Statistically significant variance was ascertained with questions 12 and 13:

- the students acknowledged the attempts of the "tutor" to instigate their active participation more positively than those of the lecturer (1,80 to 2,41). This result indicates that the "tutor" with the use of his current work-experience, can have a motivating effect on the students.

- the students considered the "tutor's" concern as to whatever his explanations had been understood to be greater than the lecturer's concern (1,8 to 2,38). Here we discern further advantage for the older student: since his own situation of being a freshman is considerably more recent than that of the lecturer, he is going to implicate his own difficulties in understanding and the need for feedback far more in both his presentation and his clarifications.

SUMMARY

The hypotheses developed above could only be partially confirmed through the evaluation of the study periods by means of the questionnaire. In the criticism of the previously reached assumptions, the collected impressions from participant observation of the seminars, plus the evaluations written at the end of the seminars were all drawn together to form a complete picture. The following conclusion is supported by the evidence:

> Basic knowledge, interests, activity, and feedback from freshmen in the course of pedagogy are taken more into consideration, and are more encouraged through the substitution of an older student in place of the lecturer.

The effects the substitution of a "tutor" has on the group atmosphere did not show any verifiable differences. The assumption that the atmosphere would be better if a "tutor" introduced the students into their studies is similarly not supported as is a decrease in the distance between student and lecturer.

An opposite effect is conceivable: The more a lecturer directs the atmosphere towards one of friendliness, equal rights and congeniality, the less the distance between him and the students will be, the better the 'learning atmosphere' will be.

On the criticism of the material (structuring, choice and presentation of material), the following significant differences were identified.

> "the lecturer is regarded with more credibility than the "tutor" as far as the application and the suitability of material concerned; for his part, the "tutor" is better able to present the material in a comprehensible way."

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TABLE ONE

ABBREVIATIONS

n = number of participants per session

N = total number of participants

T = sessions conducted by the "tutor"

L = sessions conducted by the lecturer

s* = significant level 1%

s** = significant level 5%

I. GROUP ATMOSPHERE		n=20	n=20	n=12	n=18	N=70	n=17	n=12	N=29
		T1	T2	T3	T4	ϕ T1-T4	L1	L2	ϕ L1,2
9. There was a good relationship between the teacher and the students		1,15	1,35	1,17	1,61	1,33	1,59	1,33	1,48
10. The atmosphere was pleasing and relaxed		1,3	1,3	1,08	1,50	1,31	1,59	1,17	1,41
11. I felt accepted as an equal partner		1,25	1,45	1,08	1,56	1,36	1,53	1,58	1,55
	Sum I	1,23	1,37	1,11	1,56	1,33	1,57	1,36	1,48
II. MATERIAL: choice, structure, practical application									
1. The teacher gave us hints and applications for the practical use of the subject		1,9	1,9	1,5	2.28	$1,93^{s*}$	1,59	1,33	$1,48^{s*}$
3. The teacher helped us by giving us simple examples and cribs		2,35	1,95	1,75	2,56	2,19	2,35	2,25	2,31
5. There were not too many subjects per session		1,4	1,9	1,83	1,56	1,66	1,29	1,5	1,38
7. The explanations were as simple as possible		1,5	1,55	1,42	2,0	1,63	1,65	1,67	1,66
8. The teacher made it easy to understand new subjects by relating them to well known subjects		1,95	1,8	1,92	2,28	$1,99^{s**}$	2,29	2,42	$2,34^{s**}$
	Sum II	1,82	1,82	1,68	2,13	1,88	1,84	1,83	1,83
III. STUDENTS: basic knowledge, interests, active participation, feed-back									
2. The teacher strove hard for meeting our interests		1,1	1,5	1,17	2,0	1,46	1,59	1,75	1,66
4. The manner of speaking was such that we could follow the train of ideas		1,4	1,45	1,33	1,67	1,47	1,41	1,67	1,52
6. The teacher paid regard to our preliminary knowledge		1,2	1,6	1,5	1,72	1,5	1,59	2,0	1,76
12. The teacher tried to foster our active participation		1,8	1,85	1,75	1,78	$1,80^{s*}$	2,77	1,92	$2,41^{s*}$
13. The teacher strove hard for finding out if his explanations were understandable		1,7	1,8	1,75	1,94	$1,8^{s**}$	2,53	1,92	$2,38^{s**}$
	Sum III	1,44	1,64	1,5	1,82	$1,61^{s*}$	1,98	1,85	$1,92^{s*}$
	Sum I - III	1,54	1,65	1,48	1,88	1,65	1,83	1,73	1,79

APPENDIX

Centre of Higher Education

Session Nr.

Date:

EVALUATION OF LECTURES

Introduction to pedagogy - Intake 1980

Hint: Please underline the suitable number; don't skip a question.
The questioning is completely anonymous.

The numbers mean: 1 = fully satisfactory 2 = satisfactory
3 = partly satisfactory 4 = unsatisfactory
5 = absolutely unsatisfactory

1. The teacher gave us hints and applications for the practical use of the subject. 1 2 3 4 5
2. The teacher strove hard for meeting our interests. 1 2 3 4 5
3. The teacher helped us by giving us simple examples and cribs. 1 2 3 4 5
4. The manner of speaking was such that we could follow the train of ideas. 1 2 3 4 5
5. There were not too many subjects per session. 1 2 3 4 5
6. The teacher paid regard to our preliminary knowledge. 1 2 3 4 5
7. The explanations were as simple as possible. 1 2 3 4 5
8. The teacher made it easy to understand new subjects by relating them to well known subjects. 1 2 3 4 5
9. There was a good relationship between the students and the teacher. 1 2 3 4 5
10. The atmosphere was pleasing and relaxed. 1 2 3 4 5
11. I felt accepted as an equal partner. 1 2 3 4 5
12. The teacher tried to foster our active participation. 1. 2 3 4 5
13. The teacher strove for finding out if his explanations were understandable. 1 2 3 4 5

Propositions for improving this course:

SOME SUGGESTIONS ON IMPLEMENTING A SUCCESSFUL SYSTEM OF STUDENT EVALUATION

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Different purposes of student evaluation were presented and discussed.

The session leader addresses the theme to the teaching and learning of staff with particular reference to the results that are commonly expected to flow from a comprehensive system of student evaluation. It is proposed that for such a system to be successful, the needs and wishes of the staff must have high priority at all times.

The type of approach suggested is the co-operative, step-by-step type that has met with some success at the University of New South Wales, and is currently being implemented at the New South Wales Institute of Technology. Other examples, including the programme developed at A.N.U. (by ORAM), and several overseas universities, will be examined in an attempt to identify reasons for success or failure.

AID FOR BRITAIN

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BACKGROUND

During 1976 and 1977, a group of people within SCEDSIP (the Educational Development Service network for British Polytechnics), including myself, became interested in the notion of what at University of Massachusetts was then called 'teaching improvement' -- working with individual lecturers to develop strategies by which they could teach better -- 'better', here, being defined in terms of their own intentions for their teaching. We decided that we didn't, however,like the word 'improvement': it implied some sort of failure on the part of the teacher, and it implied some sort of corrective, external standard, which was foreign to what we wanted to do.

So, 'Teaching Improvement Centres',shrunken to TICS, became Teaching Consultancy Service, still TICS - We kept the acronym because it was easy to remember and a bit funny: it generated questions like 'How do you TIC?' for instance.

Meanwhile, we generated, in the winter of 1976, Ten TIC Commandments, engraved on an OHP transparency for the SCEDSIP and SRHE Winter Conferences, and based on a survey of 23 successful institutions in 6 countries.

1. Don't patronise. Don't promise impossibilities.
2. Sell the system to high and low.
3. Link teaching analysis or VTR to personal consultancy.
4. Be confidential, be autonomous, or better -- be separate.
5. Don't mix consultancy with hiring'n'firing.
6. Train consultancy staff.
7. Teaching evaluation or consultancy should never be the ONLY thing the on-site unit does.
8. Interact with subject departments.
9. Have several styles of consultancy available -- let individuals and institutions choose.
10. You CAN have low-cost units!

So far, what we were selling was an idea, of a walk-in teaching development service as part of each of the faculty development units currently being established in member Polytechnics (and some Universities). But how do you make this idea a reality? How DO you provide ways of diagnosing what the dissatisfied teacher could to with best results?

Our 'third commandment' provided us with part of the answer. Various people in SCEDSIP were - and still are - working on different ways of enabling the lecturer, together with his consultant, to look carefully at his own teaching. These provided different kinds of evidence the lecturer and consultant could look at, each appealing to a different kind of person. The kind of evidence that would appeal most to someone like myself, however - evidence firmly behaviourally referenced but linked to student response if possible - seemed to be lacking, and I took it upon myself to try and develop it.

CHOOSING AN INSTRUMENT

This section describes the issues that led me to prefer a behaviourally referenced student response instrument, and the methodological problems that were uncovered in the course of examining whether one such instrument - IDEA (Instructional Development and Effectiveness Assessment) - could be applied to higher education teaching in U.K.

Many feedback instruments ask students to comment on 'good teaching', but most of them don't, except in terms of consumer satisfaction, say what that is. Thus they are essentially circular. Behaviourally referenced feedback, on the other hand, defines good teaching in relation to student progress; thus it is not circular, but progressive, and this is its great advantage.

However, as it turned out in a small-scale trial conducted in November 1976, IDEA itself didn't test out terribly well in Britain. On investigation, there seemed to be at least three major problem areas in it:
- there were problems of cultural adaptation - language, scoring
- there were problems of statistical sophistication in British customers' requirements, which could mean that new programmes were needed; and there were problems of methodology in the original design of the instrument, involving both partially and circularity once again, mainly to do with importing uncontrolled concepts of 'good' and 'bad' teaching into the data-collection stage of listing items of behaviour.

The effect of these was, that it was necessary to go back to the idea behind IDEA, and in essence to use it to attempt the design of a new all-British instrument on the same lines, that would meet these objections. We named this hypothetical instrument 'AID', Assessment for Instructional Development. At present, it exists in research and pilot versions, though a commercial version is in preparation, and the rest of this paper describes how these were built up, and what some of their features are.

THE CONCEPTUAL BASIS OF 'AID'

The idea behind IDEA (and therefore behind AID too) was a fairly simple sequence of reasoning.

Teachers, in class, behave in various ways (summed together, 'their teaching'), and their students perceive what they do and how often they do it.

Teachers have objectives they want to achieve through 'their teaching': these may be conscious or they may need elicitation, but they are always there. They tend to feel students 'have learned' when these objectives have been achieved.

'Teaching', however, defined like this, doesn't necessarily cause 'learning', defined like this (or in any other way!). At best, it facilitates it, and it does so by several means, one important one being to give the students a sense of confidence in their own progress towards the same objectives as the teacher has, but as they perceive it.

If then, statistical analysis of a sufficiently large number of student responses shows there is a significant tendency for frequent or infrequent performance of a particular behaviour to correlate, for particular student groups, with the students confidence, or lack of it, in their progress towards a particular objective, and that progress is what the teacher wants to achieve, then we know what to suggest to him about a probably useful strategy change. So far, so good, but now comes a major problem. Statistical relationships of this sort, it turns out, only hold good if the students have a common culture, and if the instrument is uncontaminated by previous value-judgements. Unfortunately, as we've seen, neither of these seemed true of IDEA when used in England.

BUILDING UP 'AID'

In about May 1977, therefore, I started to try and obtain value-free evidence about what objectives British faculty believed important, and what teaching behaviours British students perceived as memorable. Because of the existence of taxonomies of educational objectives, the former was easier to do than the latter, and so was done first.

A list of 46 behavioural sentences, derived from all three domains of Bloom and Krathwohl's taxonomy, was rated for importance by a sample of 81 staff from 12 institutions, working in 7 'discipline' areas - Humanities, Education, Art & Design, Social Studies, Business Studies, Engineering, and Science. The results for each item were then analysed for skewness both for the whole group and for each discipline area, and the results for the whole group for each item were cross-tabulated by discipline area.

On the Skewness analysis, three types of result were observed:
(a) a normal curve (skewness below ± 0.6),
(b) a skewed curve, and
(c) a curve normal about its mean, but possessing high kurtosis and with the mean substantially removed from the mid-point of the scale.
Types b) and c) could be skewed or shifted up or down the scale. In interpretation, type b) was read as indicating a situation where all ranges of opinion about the importance of that objective were present, but there was a 'majority' view that the objective was important (or unimportant) and typed as indicating a situation where there was a substantial 'consensus' view about the objective's importance. Type a) was taken as indicating a neutral majority.

The results demonstrated that selection of objectives was very strongly discipline bound. Of the 24 objectives most frequently chosen as 'very important', the most chosen by any one discipline area was 13 (by Art &

Design), and only ONE - 'develop the ability to work on his own' - was chosen by EVERY discipline area, with two more - 'be able to interpret data' and 'develop a repertoire of professional skills' - being chosen by all discipline areas except one.

Some items swung from positively important to positively NOT important: an obvious one is 'be able to assemble and set up apparatus'; a less obvious one 'be aware of how professional scholars acquire new knowledge in the field'; and some objectives expected to be important were recorded as either of neutral importance or positively unimportant - for example, 'come to volunteer for work' or 'come to be an ethical person'.

Work on the second phase, analysis of students perceptions of lecturer behaviour, showed similar discipline binding. A content analysis of the raw student responses showed in all some 73 items about which there was indication of more than merely individual response, but only between sixteen and 35 of these items were marked down in this way in any given discipline area, and once again only one, about the lecturer's organisation of the student's workload, was so noted in every discipline area, with four more, about lecture preparation, and staff availability and friendliness, being so noted in every discipline area but one. (In both the last two cases, the missing area - with merely a single individual mentioning them - was pure science.)

DISCUSSION

Let us now resume what has come out of the building-up process for 'AID', to make clear its relevance to this conference.
Four important general conclusions were found:

(1) Only one item in each list was selected by the system for inclusion for every disciplinary group, and only a few more (two objectives and four behaviours) for inclusion for every disciplinary group but one. There was therefore very little commonness between disciplines, either over faculty selection of which objectives were important or over student selection of which behaviours were memorable.

(2) However, there was clear agreement within each broad discipline area - e.g. 'Engineering', 'Humanities','Social Sciences' etc. - both among faculty as to the importance of objectives, and among students as to the memorableness of behaviour.

(3) The list of items derived from the faculty responses produced characteristic patterns of distribution between cognitive, affective and psychomotor domains, ("climates'), and characteristic levels of a factor named 'enthusiasm' in the detailed study, which in each case could be consistently related to understandings of the cultural nature of the discipline concerned arrived at by other means.

and (4) The student generated items, on content analysis, proved to range far beyond classroom presentation technique. Five analysis categories were eventually employed - Structure and Organisation of Classes, Presentation Skills, Interactive Behaviour, Body Language, and Emotional Climate Setting, yielding a total of 73 items involving measureable agreement in at least one discipline area. That is to say, without any prompting, by value labels or otherwise, students proved to be highly sophisticated observers of teacher behaviour.

One effect of these conclusions is that, it has been impossible to design one version of the AID form, even at final research level, that will be useable across an entire institution. This is so important in its implications both for existing practice and future development, that I will repeat it rephrased. Based on this work, it is not possible to produce a 'global' instrument that can be used centrally by an institution for making comparison between judgements of different faculty members, and I would now argue that any past or present use of student evaluation instruments in this way must be viewed with the gravest suspicion. The largest single unit within which comparison is possible is the discipline, and in any case many behaviourally referenced items are already inherently non-judgmental in form. The only proper use of such a system is thus a formative one, as part of an individual or group process of teaching development.

USES OF THE SYSTEM

The AID system's uses therefore include diagnostic evaluation, just as other student rating systems do, though they specifically exclude evaluation for tenure or promotion. The system also however - by use of the collection instruments as well as the rating form - allows such uses as:

- description of a particular faculty, course or departmental "climate"
- comparison between course "climates" to help locate student study difficulties on transfer (this is the subject of my other main workshop, q.v.)
- description of a particular student class selection for that discipline
- production of games and simulations for faculty development seminars.

There is no doubt that many other areas of use are also possible.

However, inevitably the main interests of AID's potential users will be in its capacity to offer useful information on how their students see them, how confident their students feel about learning, and they could modify their teaching strategies to increase that confidence in areas where it may be useful to do so.

IDENTIFYING PRACTICAL PROBLEMS AND ISSUES IN EVALUATION

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INTRODUCTION

Attention is often given in the literature to the importance of stated reasons for undertaking evaluation. For the relatively inexperienced person involved in evaluation, however, identification of these reasons, their importance and the implications for evaluation strategies employed, are often underestimated in practice. Similarly, scant attention has been given to enabling those involved in evaluation, especially those responsible for conducting courses, to identify for whom the evaluation is to be undertaken.

This workshop aimed to address these two issues - reasons for undertaking evaluation, and identification of for whom the evaluation is being undertaken. It was aimed at persons in undertaking evaluation who would not have the benefit of an independent evaluator.

WORKSHOP PROCESS

Participants were divided into three groups and shown a 17 minute video on evaluation. The video consisted of a group discussion between three staff members of a tertiary institution who had been involved in evaluating their courses over the previous twelve months.

Participants were directed to focus on the two questions -

1. What were the reasons for undertaking the evaluation?

2. For whom was the evaluation?

Each group was asked to pay particular attention to one of the speakers in order to clarify why and for whom that teacher undertook evaluation. Groups summarised the reasons they were able to glean from the video, added more of their own and reported back to the large group.

The workshop concluded with a short exposition by the organisers giving some reasons for undertaking evaluation, examples of for whom evaluation can be undertaken and issues in evaluation.

TRIGGER FILM RESPONSES

Participants were able to identify most of the reasons given for evaluation on the video.

These are summarised below:-

Teacher 1 Responsible for co-ordinating and teaching in a post-graduate diploma.

This teacher began evaluation simply because it was the tradition in his institution and there was a support system of competent evaluators available. He later became a 'total convert' to the process. He used evaluation to monitor changes in the course, to find out whether the course was doing what it was designed to do, to keep the students happy and to keep himself honest. In his view, evaluation was being carried out for the students, for the teachers on the course, for the co-ordinator, for external advisors to the course and for interested others at his institute.

Teacher 2 Responsible for planning and teaching a first year undergraduate interdisciplinary course.

This teacher, new to teaching from research, used evaluation to clarify and evaluate his course objectives, and to assess the efficiency with which he was achieving the objectives. He was interested also to get information on his teaching style and on how students perceived the course. He saw the evaluation being for himself, for students in later years and ultimately for the consumers of the professional services the students were being trained to deliver.

Teacher 3 Responsible for organising and managing the clinical education component of a course.

This teacher became involved in evaluation because her superior suggested it. Once involved, she wanted feedback on the effectiveness of the course management and on the match between her perceptions and those of the students. She undertook the evaluation initially for her superior and subsequently to satisfy herself about the management of the course. She was unsure that the process satisfied the needs of students.

As well as identifying those reasons given by the teachers on the video, participants in the workshop were asked to identify further reasons of their own, which they might give for undertaking evaluation.

Suggestions included:-

1. Modify and improve course performance - find out where we may be off course.

2. For promotion and tenure.

3. For course accreditation.

4. Maybe because it's required.

Finally, some issues in evaluation were discussed and are summarised below.

Fig. 1.

SOME REASONS FOR UNDERTAKING EVALUATION

ORGANISATIONAL

* Expected by Institution
* Suggested by Superior
* Formal Review
* Accreditation

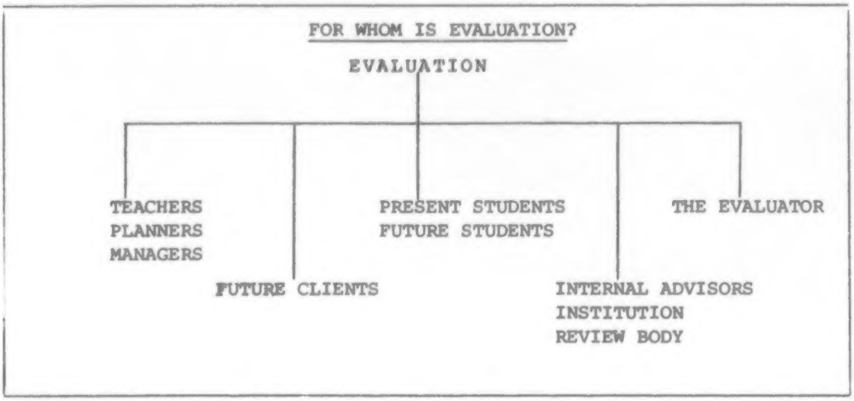
INDIVIDUAL

* How well am I doing?
* Am I really doing what I think I'm doing?
* Are my objectives realistic?

CURRICULUM AND DEVELOPMENT

* Are course objectives achieved?
* Are students' expectations met?
* How useful are seminars?
* Are overheads effective?
* Do the students use the references?

Fig. 2

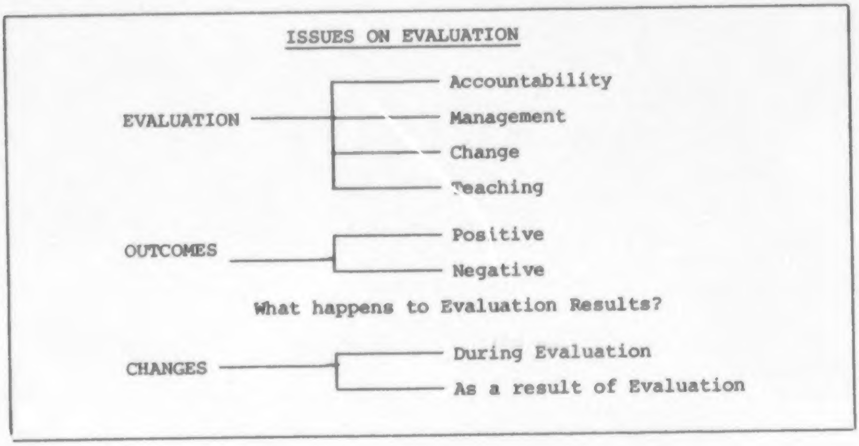


FOR WHOM IS EVALUATION?

EVALUATION
TEACHERS
PLANNERS
MANAGERS
FUTURE CLIENTS
PRESENT STUDENTS
FUTURE STUDENTS
INTERNAL ADVISORS
INSTITUTION
REVIEW BODY
THE EVALUATOR

The more general issues discussed which related to outcomes of evaluation might be briefly summarised as in Fig. 3.

Fig. 3


ISSUES ON EVALUATION
EVALUATION
Accountability
Management
Change
Teaching
OUTCOMES
Positive
Negative
What happens to Evaluation Results?
CHANGES
During Evaluation
As a result of Evaluation

DISCUSSION

The workshop achieved its main aims of highlighting the importance of identifying reasons for undertaking evaluation, and of identifying for whom the evaluation is being undertaken. The range of answers given to these questions, and expanded in the section above is perhaps typical of the rather complicated social, political and educational context in which evaluation takes place. The workshop was not able, due to constraints of time, to move onto a third area of interest to the organisers, namely to relate the kinds of information supplied by participants to the kind of evaluation strategies which could most usefully be employed to meet the needs of the teacher. Most participants, however, (even those who had previous experience of evaluation) found the workshop a useful exercise.

Part VI:

Student Fulfillment and Frustration

1. Factors affecting study processes:
   implications for teaching in different
   disciplines
   J. Jones

2. Language and study skills across the
   disciplines
   L. Marshall

3. Student attitudes and approaches to a
   self pace learning programme in
   mathematics
   B. Anderson

4. Teaching essay writing to first year
   social science students
   H. Bock

5. Andragogy not pedagogy
   T. Hore

6. Special entry students in tertiary
   education
   R. Osman

7. Mature age students in tertiary courses
   L. Greagg

8. Exit interviews - talking to those
   who leave
   N. Lawler

9. Symbiosis and tension -
   dropouts, failures, academics and
   administrators
   J. Malley

INTRODUCTION TO PART VI

It has been previously noted that a dominant theme through the conference was a concern for student needs, abilities and expectations in the learning situation. This concern manifests itself through a desire on the part of teachers to better understand how students with differing backgrounds approach learning, what they need in order to make their learning as effective as possible for them and how this should be translated into particular strategies for teaching and learning. Implicit in much of the discussion about students' approaches to learning is the question of matching the students skills and abilities to the expectations of academic teaching staff. Thus there is much attention focused on developing study skills, essay writing skills and the problems of special entry students in coping with academic life. Another perspective is evident, too, whereby the focus of attention is on staff, institutions and their interaction with students in the process of matching of expectations.

John Jones takes up the issue of matching student and staff expectations. Workshop participants were asked to identify their expectation of students' study behaviour. These views were then contrasted with research findings on students' study processes which indicate that study strategies vary. Factors which influence this variation include students motivation for being in higher education, their reasons for taking a particular course, their perceptions of what learning entails, the nature of the particular discipline, overt and covert staff expectations and the particular course structure.

Bernice Anderson examines the influence of a particular learning strategy-self paced learning in mathematics - on the attitudes, study habits and working strategies of students. The findings of the study she describes provide evidence that students with lower levels of competency and interest in mathematics tend to be less satisfied with self-paced instruction than more able students and may prefer more traditional directed course structures. Additionally, satisfaction with self paced instruction is strongly related to organised study habits, maturity, motivation and interest but not to ability as measured by results.

Larraine Marshall's workshop presented student centred techniques for improving study and learning habits. In similar vein, Hanna Bock describes approaches used to improve essay writing and study skills through the English Advisory Scheme for social sciences students at La Trobe University. She identifies three broad groupings of problems: deficiencies in basic writing skills, deficiencies in reasoning skills, and adjusting problems and then proceeds to analyse various factors which contribute to these problems. In her experience, students' interpretation of the task set may differ from that of the teacher, conflicts occur between the demands of objectivity and personal development in writing essays, there is a cultural gap between students' and academics' views of reality, and ambiguity and uncertainty exists about the use of sources versus plagiarism and copying. These factors give substance and meaning to umbrella comments such as 'clumsy expression' which are explained in terms of language inadequacies.

Terry Hore outlines the scant state of knowledge about adult learning as the basis for proposing most profitable future research thrusts. He argues that the available findings indicate that adult learners desire logical organisation and structure in learning, a preference for reading and listening, a dislike for pictorial presentations and direct experiential learning and a preference for self-directedness. He suggests that a profitable area for future study is the possible interactions between students' approaches to learning, styles of teaching and disciplinary distinctiveness using methods of investigation which derive from social anthropology rather than excessively quantitative and static methods. Around 75% of the population of a study of participants in special entry schemes in South Australia could be classed as adult learners as defined by Terry Hore (i.e. between 25 and 50 years of age). This study, Rosemary Osman reports, examined the background characteristics, motivations, and perceived problems of students participating in special entry schemes. Interesting background characteristics include: 41% of entrants were single; 65% were born in Australia; 83% had not completed 12 years of schooling; 56% had no occupational qualification; and 40% were in full time employment. Personal enrichment, and potential for changing their current situation were highly rated reasons for enrolling. Major problems experienced related to lack of time to cope with work and study demands, lack of knowledge about required standards and finances. Rosemary Osman concludes that the study contains policy implications especially regarding the size and nature of potential clientele. The focus of Lesley Greagg's paper shifts our attention away from the administrator's view of special entry schemes to that of the would be student. She argues that such people require considerable amounts of self-confidence and courage in choosing to apply for admission. She goes on to discuss access programmes with particular reference to the Women's Access Programme at Whitehorse Technical College as a means by which potential mature age students may develop sufficient confidence and skills to proceed with further study.

The last two papers in this section examine student attitudes to learning from the other end of the process by focusing on those students who 'drop out'. Jeff Malley is critical of much of the research done on student dropout on the grounds that it has overlooked the role the institution plays in the process. He argues that past research has tended to define the drop out phenomena in terms of the inadequacies or inappropriate expectations of students. The concept of student attrition is largely considered from the point of view of management and institutional efficiency rather than seriously questioning the effects of institutions and their value structures on the performance of students. Jeff Malley then reports that in an investigation which explored the perceptions of staff towards stereotyped student descriptions it was found that different staff grouping had varying degrees of positive or negative attitudes towards students. He postulates that the interactions of these staff may in different ways be contributing factors in students decisions to withdraw from courses. Nigel Lawler takes up a similar theme: strategies to solve the problem of attrition have been mainly concerned with selecting out at risk students and providing extra help through study skills, counselling etc. for those who need it. He suggests that new lines of research are needed into the effects of academic social and administrative influences on student behaviour, and student expectations and perceptions of the academic environment. He reports that it was with these concerns in mind that a study involving exit interviews was embarked upon. The study found that 80% of students who formally discontinued did so for non academic reasons, however most of these had returned to study at a tertiary level the following year. The students who simply dropped out had various reasons associated with difficulty or dissatisfaction about their studies. Nigel Lawler argues that the implications are to turn our attention to ways in which student learning can be made more meaningful and to improving the quality of education through improving the institutions in which it is offered.

FACTORS AFFECTING STUDY PROCESSES: IMPLICATIONS FOR TEACHING IN DIFFERENT DISCIPLINES

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Recent research into learning processes and study habits has indicated that tertiary students' study strategies vary widely. Among the factors which affect this variation in strategies are students' reasons for being in higher education, their reasons for taking a particular course, perceptions of what learning, understanding and explanation entail and the particular discipline in which they are pursuing their studies. The aims of the workshop were to first suggest some concepts which are useful in discussions of student learning, and then to present information and materials which have been useful in student development.

The workshop was organised in three phases; each of these is described below, in turn.

PHASE 1 - PARTICIPANTS COMPLETE A QUESTIONNAIRE

The most immediate concern of staff regarding their teaching is the face-to-face contact in which they engage with their students, whether this be in lecture-hall, tutorial room or laboratory. However, most student learning takes place outside of the formal classroom, and the "hidden curriculum" (Snyder, 1971) of a course often dictates, to a significant extent, the ways in which students organise their studies.

Many staff tend not to think about the ways in which students go about their studies, and the conception of learning can be different for staff and students (Saljo, 1979). To stimulate participants in thinking about the ways in which their students study, they were asked to rate certain activities according to whether they would like their students to typically behave in this fashion. The questionnaire form is reproduced on the next page: rationales for the items are to be found in the work of Biggs (1979) and Bell, Caves and Bligh (1979) which is described later.

STAFF PERCEPTIONS OF STUDENTS' STUDY BEHAVIOUR

In which subject do you teach?

Ideally, what would you like your students to do while they are studying in the courses that you teach? (It might help to focus your thoughts upon a specific course for which you feel a strong commitment). Rate the activities in the following ways:

Yes:- Yes, I would hope that students would typically do this.

No:- No, I would not want my students to typically behave in this way.

Undecided:- Only use this category if you feel that you absolutely must.

		Yes	No	Undecided
1.	Covering the whole syllabus when revising for exams.	☐	☐	☐
2.	Writing unusual/controversial answers in examinations.	☐	☐	☐
3.	Asking question in class	☐	☐	☐
4.	Working and studying in a regular and systematic fashion.	☐	☐	☐
5.	Studying what is given out in class or in course outlines rather than "browsing".	☐	☐	☐
6.	Learning key facts off by heart.	☐	☐	☐
7	Spending a lot of time by going further into topics they find personally interesting.	☐	☐	☐
8.	Keeping neat, full, organised notes.	☐	☐	☐
9.	Summarising suggested readings and including these in notes.	☐	☐	☐
10.	Relating material covered in one course to topics treated in another.	☐	☐	☐
11.	Attempting to relate course material to "real-life" situations.	☐	☐	☐

		Yes	No	Undecided
12.	Completing assignments as soon as possible after they have been set.	☐	☐	☐
13.	Acquiring the knowledge that you think is important.	☐	☐	☐
14.	Aiming for understanding of a subject, rather than high grades.	☐	☐	☐
15.	Doing practice answers when revising.	☐	☐	☐
16.	Discussing their work with other students.	☐	☐	☐
17.	Being vociferous in tutorials or small-group teaching.	☐	☐	☐
18.	Revising from notes (from lectures and/or other sources) rather than from books.	☐	☐	☐
19.	Adopting strategies which ensure at all costs that they do not fail papers.	☐	☐	☐
20.	Staying away from classes which they feel they can do without.	☐	☐	☐
21.	Consulting you outside of formal classes.	☐	☐	☐
22.	Disagreeing with your opinions in class.	☐	☐	☐
23.	Being primarily concerned with gaining high grades.	☐	☐	☐
24.	Using past examination papers as a main guide for study.	☐	☐	☐

After completing the questionnaire participants compared their responses, in pairs, for a few minutes.

PHASE 2 - PRESENTATION OF CONCEPTS

A statement from John Biggs of the University of Newcastle (1979), outlines some of the conclusions arising out of his work into students' study processes.

> "It is often assumed that most serious students are similarly motivated in their tertiary studies, and teaching practices are adjusted to these assumptions. For example, the award of grades of pass (Credit, Distinction, etc.) is assumed to motivate the 'best' students more effectively than an ungraded pass. It is also assumed that there are a few 'correct' approaches to study, and that students should be trained in them.
>
> Like most well widely held assumptions these particular ones are partially true. Some students are motivated by graded passes to do better than they otherwise would, but certain others (also 'good' students) are not. Likewise there are certain specific techniques, such as those related to library usage, in which all students need to be well skilled, but there are other aspects of studying, such as sticking to a well organized schedule, that even impede the learning of some students.
>
> Recent research, including my own over the past ten years, suggests,first, that students in senior high school years, college and university tend to have varied motives for studying, and several broad strategies of study; and second, that whatever particular strategy they adopt, it should be compatible with their motives. In other words, how they go about studying is a function of why they are studying.
>
> Three of the most important motive-strategy dimensions are:

1. Utilising

   Motive: to undertake further study as a means for obtaining a better job, more money, or some other extrinsic need.

   Strategy: overall, simply to avoid failure and specifically to focus on minimal content, primarily factual, as prescribed in class handouts, course outlines, etc., and to rote learn this necessary minimum for reproduction in examinations and/or assignments.

2. Internalising

   Motive: to work out one's philosophy of life and to develop special interests and abilities; studies are selected therefore that hold maximum intrinsic interest.

   Strategy: to read widely and with maximal understanding (independently of course requirements), to integrate various subjects and make them personally meaningful.

3. Achieving

Motive: to excel in studies as part of a general competitive approach to life and win high status thereby; more specifically to study with a view to maximizing grades awarded.

Strategy: close orientation to course outline, work schedule tightly organised, assignments completed on time, etc.

These three dimensions are general tendencies only. Many students have mixed motives and strategies, but they are usually motivated predominantly in one of these three ways, and tend to employ the appropriate strategy of study."

Sample items used to assess students' motives, and associated strategies, are as follows:

Utilising

Motive: Whether I like it or not, I can see that further education is for me a good way to get a well-paid or secure job.

Strategy: I learn some things by rote, going over and over them until I know them by heart.

Internalising

Motive: I usually become increasingly absorbed in my work the more I do.

Strategy: I find that I have to do enough work on a topic so that I can form my own point of view before I am satisfied.

Achieving

Motive: I have a strong desire to excel in all my studies.

Strategy: I test myself on important topics until I understand them completely.

Biggs' descriptions of Utilising, Internalising and Achieving parallel some descriptions which were derived from students' reported reasons for attending the University of Auckland and taking specific courses (Jones, 1979). The concepts derived from the Auckland study were:

Human Capital = Utilising
Maturation = Internalising
Filter = Achieving

Another concept which is useful is Intellectualism: this is a university role which most staff feel is important (Jones, 1975).

In 1978, students beginning their third year of study at the University of Auckland were asked how accurately they thought each of four descriptions fitted the University of Auckland. The four descriptions, representing respectively Human Capital, Maturation, Filter and Intellectual roles, were as follows:

1. It is a place where students come to acquire specific knowledge and skills, so that they will be able to become productive members of society who can better contribute to the economic (and social) well-being of the country.

2. It is a place where students come to spend a few years in a pleasant and relaxed atmosphere, surrounded by stimulating company. Students develop their individual abilities without being too much constrained by thoughts of employment.

3. It is very much like an "obstacle course", and the main aim of the process is to identify the most able students. The most skilful students survive the best, gain the highest grades and end up getting the best jobs and positions.

4. It is an institution which is deeply committed to the pursuit of excellence. Scholars, who are experts in their subjects, pass on their scholarship and expertise to students, attempting to instill in them a love for their subject.

The ways in which students responded to the accuracy of the description are indicated in the table below. Figures represent mean ratings on a five-point scale where:

1 = Very accurate description
5 = Not at all like this

OPINIONS OF THE ACCURACY OF DESCRIPTION OF VARIOUS MODELS FOR THE UNIVERSITY OF AUCKLAND

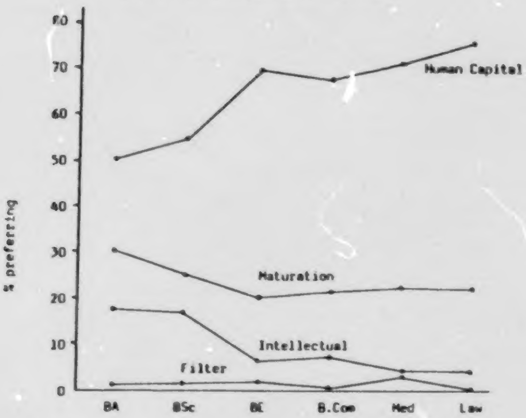
	Arts	Science	Law	Engineering	Commerce	Medicine
Human Capital	2.48	2.49	2.36	2.16	2.25	2.31
Maturation	3.15	3.05	3.11	3.33	3.28	3.17
Filter	2.98	3.03	2.92	3.17	3.18	2.95
Intellectual	3.53	3.47	3.64	3.31	3.74	3.34
N =	264	111	107	104	93	42

Although there are minor variations across the different degree groups, students pursuing various disciplines tend to see the university in similar ways. What is interesting is the extent to which the Intellectual role is seen as not typical. It is interesting in that this is the role to which most academic staff members subscribe. Staff and students tend to see the reality rather differently.

Students' preferred roles for a university, depend quite markedly upon the particular degree being pursued. The figure below gives the percentages of the different degree groups opting for the different (preferred)descriptions. Arts - and to some extent Science - students are less likely to wish for a vocational role for the institution, and more likely to have a maturation/intellectual preference; the reverse is true for the Engineering, Commerce, Medical and Law groups.

PREFERRED MODEL FOR A UNIVERSITY

Students' preferred roles for a university.



Other recent work which is relevant to the relationships between motives for attendance, area of study and study strategies is due to Bell, Caves and Bligh (1979). These workers showed that students taking different courses tended to adopt different study strategies. By analysing students' responses to descriptions of various study strategies, they were able to discriminate typical study behaviours along two dimensions.

Discriminant function 1. suggests an Arts/Science dichotomy. Those students who were toward the lower end of this dimension were studying maths, Applied Sciences and Physical Sciences. Among the typical study strategies associated with this end of the dimension were:

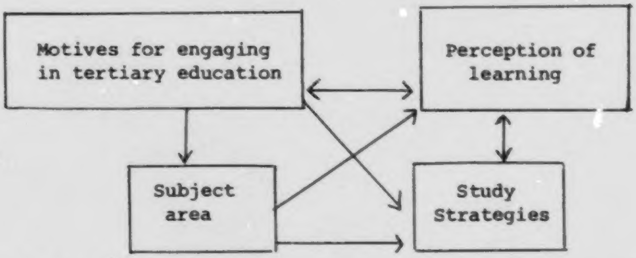
- revising the whole syllabus when studying for examinations
- doing practice answers when revising
- not studying regularly.

At the other end of this dimension were Arts and Languages students who tended to have study habits which were opposite to those described above.

Discriminant function 2. tended to separate off Law/Social Science students from the remainder. Associated with Law/Social Science students were the following study strategies, among other:

- writing controversial answers in examinations
- not doing practice answers
- not asking question in lectures

In essence, the sum of the evidence suggests that students have different motives for engaging in higher education and different perceptions of the process. These different perceptions tend to be associated typically with different subject areas, and also with different study strategies. The diagram below indicates a likely pattern of relationships among the various factors. (There is, of course, a mass of individual differences which are also of importance).



It must be axiomatic that course structures and teaching strategies can help, or hinder, students' learning. Very important is the structuring of courses which are relevant in terms of students' motives, their perceptions of learning and the associated study strategies they bring to their courses. These motives, perceptions and strategies are probably discipline-dependent.

PHASE 3. - "STUDY SKILLS" COURSES: MATERIALS

Since students have different motives for being in a course, different perceptions of what learning entails and different study strategies (which must have some validity for them), then it is very important to start "where students are at". It doesn't make much sense to preach internalising strategies, or deep learning (Marton, 1976) to students, when they are simply utilising or using the course as an instrument to achieve a desired end. Presenting students with didactic advice on how they should be studying is likely to be unsuccessful in many cases; the advice can quite probably be incongruent with what is commonsense to students in terms of their motives and perceptions. An approach which draws on students' perceptions is likely to be more successful. Gibbs' (1977) ideas form a sound basis for student development programmes. However, experience suggests that group sessions need "trigger" inputs which are relevant for the groups, and also that a final didactic presentation at the end of group discussion can be valuable. (Jones, 1980).

As an example of trigger material which has been produced for first-year students at Auckland, a video-film was presented[1]. This presents the ideas of five "typical" first-year students at the University of Auckland. Their ideas about why they came to university, what studying at university means to them and their advice to other students on how to cope with university are presented. The film is intended as a stimulus to help students sort out their own ideas about what tertiary study and learning mean. In the light of this deliberation it is possible to make more valid selections from among a range of study skills advice which may subsequently be offered, and to develop a repertoire of meaningful strategies.

---

[1] Varsity: the good life? Video, colour 18 mins. Produced by Higher Education Research Office/Audio Visual Centre, University of Auckland.

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LANGUAGE AND STUDY SKILLS ACROSS THE DISCIPLINES

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Whether they realize it or not, most tertiary teachers are influencing how their students learn and study. The workshop presented student-centred techniques that can be easily utilized in most disciplines for the more systematic development of student learning and study habits.

STUDENT ATTITUDES AND APPROACHES TO A SELF-PACED LEARNING PROGRAMME IN MATHEMATICS

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INTRODUCTION

The opportunity for this study arose during an evaluation which the Office for Research in Academic Methods was asked to undertake for one of the mathematics departments in the Australian National University. Two of the courses offered by the department and to be included in the evaluation were taught by the Keller Plan of self-paced instruction. The first of these courses had been introduced into the department in 1975, and had been very favourably received by the first group of students (Smythe, 1975). This is in accord with most of the literature on self-paced instruction, which provides much evidence of highly favourable student responses (Brook, 1977). As well as surveying student satisfaction with each of the courses offered in the department, their content, aims and objectives, workload, teaching methods, and assessment, the staff in charge of the Keller Plan courses were anxious to know whether the system of self-paced instruction suited the needs of the particular groups of students involved, and how students approached a self-paced learning program.

A selection of the available literature on self-paced instruction revealed that published articles generally covered four categories of approach. These were

(a) *descriptive*: articles which described self-paced learning programs in various disciplines, with emphasis on the organisational factors involved in planning and conducting such courses, and the problems which could be expected in the initial stages (e.g., Gessner, 1974).

(b) *attitude evaluations*: articles which attempted to assess the value of self-paced instruction from evidence of higher student ratings. Some of the observations made include higher motivation, interest and general liking of courses, more positive feelings of competency, and fewer feelings of anxiety and fear of failure (e.g., McCollom, 1974).

(c) *achievement evaluation*: articles, often contradictory, which attempted to assess the value of self-paced learning from evidence of higher achievement. Evidence of higher achievement from self-paced, as compared to traditional, instruction is inconclusive, with some studies reporting no differences in learning, and others reporting higher grades (e.g., Harris and Liguori, 1974; Newman *et al.*, 1974). If, as has been suggested (Dahlke, 1974), success in a self-paced learning program is equated with completing the course, failure is replaced by withdrawal or procrastination. Many studies have remarked upon the problem of procrastinating students (e.g., McCollom, 1974).

(d) *research studies*: overlapping with much of the above literature, reports on research studies which have attempted to assess attitudes or achievement by comparing students in a self-paced learning program with a carefully matched control group in a traditional program (e.g., Harris and Liguori, 1974). Results of these studies have varied widely in the conclusions reached.

Very little of the literature describes specific methods of evaluating self-paced learning programs except as part of the on-going organisation of the course (e.g., Bridge, no date). In drawing up our questionnaire, we included questions which aimed to ascertain student attitudes to the self-paced nature of the course, and to find out whether students employed carefully thought-out study strategies when faced with a self-paced learning program.[1] The data acquired from the evaluation are now brought together in this study to provide further descriptive information about the pattern of student attitudes and approaches to self-paced instruction.

Although the major part of the study concerns the first-year modified Keller Plan course (KP1), data from a number of other sources have provided very useful material for comparative purposes. These other sources include: a traditionally-taught first-year unit with similar aims and content, and a similar student population (TRAD 1); a second-year unit also run by self-paced learning modules, but with a very dissimilar student population (KP2); the total student body enrolled in the mathematics department; and a survey of study methods of all first year Arts and Science undergraduates, undertaken by my colleague, David Watkins, using the Entwistle 'Approaches to Studying' inventory. All of these surveys were conducted with students enrolled in the department in 1980.

COURSE OUTLINES OF THE TWO SELF-PACED LEARNING PROGRAMS

The first-year course, KP1, was a technique-oriented course designed for students with a limited mathematical background. The syllabus covered elementary differential and integral calculus, with emphasis on methods rather than theory. Offered on a semester basis, it was geared towards students whose main interests lay in the social or biological sciences and would not normally qualify a student to proceed further in the mathematics department. Pre-requisites were a satisfactory pass in the two-unit course or a good pass in the two-unit A course at the New South Wales Higher School Certificate, or its equivalent.

Although the course material was presented in lectures and practice sessions, students were free to work through the six modules at their own pace, and to present themselves for a 'quiz' when they considered themselves ready to move on to the next module. A student could attempt as many quizzes as necessary to achieve the 70 per cent minimum requirement to pass a module, and was not graded on the results of quizzes. It was necessary to pass a minimum of three modules to be eligible to sit for the final exam, and to pass five modules to be exempt from the final exam. Although many students passed five or even all six modules, the majority elected to sit for the exam in order to upgrade their final results.

The department also offered a traditionally-run course (TRAD 1), covering techniques of finite mathematics and aimed at a similar student population. Although a student could take both units, in practice most students requiring a service course in mathematics elected to take one or the other.

In contrast to KP1, the second-year Keller Plan course, KP2, was a half-point unit in numerical analysis taken by students in second and third years with a strong mathematics background. Six modules were offered, with 100 per cent being required to pass a test. No exam was offered, but it was necessary to pass four modules for a Pass, five for a Credit, and five plus an extra project for a Distinction or High Distinction.

CHARACTERISTICS OF THE STUDENT POPULATIONS IN EACH COURSE

KP1

Because students in KP1 were infrequent attenders at lectures and practice sessions it was impractical to administer the questionnaire in class, as was done with all other units, and the students were contacted by mail. This resulted in a lower response rate than from the other mathematics units (55.9 per cent, compared with 65.7 per cent), but made it possible for each respondent to be identified by name. Responses were later matched with final exam results and with scores on the Entwistle 'Approaches to Studying' inventory. None of the respondents in other units could be identified in this way.

The intended majors of the 33 students in the sample were mainly in the Biological Sciences (47 per cent), Economics (19 per cent), and Forestry (16 per cent). As was expected none was intending to major in mathematics. Slightly fewer than half (48.5 per cent) had completed the equivalent of Higher School Certificate three-unit mathematics, and 18 per cent found their school mathematics background 'less than adequate' for the unit.

TRAD 1

The 74 respondents enrolled in TRAD 1 exhibited similar characteristics to the KP1 students, with 40 per cent intending to major in Biological Sciences, 20 per cent in Forestry, and 18 per cent in Economics. The percentage who had completed the equivalent of Higher School Certificate three-unit mathematics was 44.6 per cent, and 28.4 per cent of the respondents found their school background 'less than adequate' for the unit.

This close similarity between the student populations in KP1 and TRAD 1 should be particularly noted.

KP2

In contrast to the two first-year units, 93 per cent of the KP2 sample (15 out of a total of 16 respondents) intended to major in mathematics, and none found their previous mathematical background 'less than adequate' for the unit.

RATINGS OF STUDENT SATISFACTION

There are many factors which contribute to student satisfaction with a course. It is not necessary for the purposes of this study to examine them here, nor to indicate the extent of student satisfaction with such factors as the quality of teaching, course content, assessment, etc. However, considering that self-paced learning programs are often oriented towards students with lower levels of competency, in the belief that the self-paced nature of the program removes anxiety and fear of failure, and results in more favourable ratings than traditionally-run courses, it was surprising to find that our KP1 students were less satisfied with the course structure than students in each of the other courses surveyed. The percentages in each group who would 'recommend the same course structure as at present for future students' were as follows:

All students in TRAD courses, semester I (*n* = 209)	84.2%
KP1 students (*n* = 33)	57.6%
All students in TRAD courses, semester II (*n* = 261)	79.3%
TRAD 1 students (*n* = 74)	70.3%
KP2 students (*n* = 16)	81.3%

As the students in KP1 gave very favourable ratings to their teaching staff and to the quality of academic help, and gave no indication of marked dissatisfaction with course content, levels of difficulty, or other aspects of presentation, it is reasonable to assume that the lower level of satisfaction with the course structure was directly related to the self-paced nature of the course. From this assumption it was decided to use the data from the survey to identify students with positive and negative attitudes to KP1, and to look more closely at their motivation, interest, study habits, and final results.

ATTITUDES, STUDY HABITS, AND EXAMINATION RESULTS

Although considerable effort was expended in obtaining the final examination results for the 33 KP1 respondents, and in attempting to correlate them with other variables, this approach was found to have serious limitations. The main reason for this was that students who failed the unit were not proportionately represented in the sample (see Table 1). As we were unable to make any assumptions about students who failed, other than that they probably withdrew before completion of the semester, an attempt was made to identify any apparent differences between the responses of students who gained Distinction or Credit, as opposed to students who gained a Pass. As these two groups were differentiated only by an arbitrary cut-off point, and were nowhere near equal in size, the apparent differences which did appear could not be considered statistically significant.

Some of these apparent differences are nevertheless interesting. For example, students who obtained a result higher than a Pass indicated a

TABLE 1: EXAMINATION RESULTS OF KP1 STUDENTS

Exam results	*All students* (*n* = 59)		*Sample* (*n* = 33)	
HD	1	1.7%	0	0.0%
D	2	3.4%	2	6.1%
CR	9	15.3%	6	18.2%
P1	37	62.7%	21	63.6%
Not finalised	1	1.7%	1	3.0%
N	9	15.3%	2	6.1%
Unidentified	-	-	1	3.0%

marked lack of interest in the subject, with five out of the six Credit students claiming they were 'not very' or 'not at all interested', compared with an overall positive interest from 54.5 per cent of the sample. The higher achievers were also less frequent attenders at practice classes. On the other hand, students who achieved a Credit or higher were more likely to see the self-paced nature of the course as 'a very valuable teaching method' and less likely to believe that 'lack of deadlines encourages laziness' (see Table 2).

TABLE 2: ATTITUDES OF KP1 STUDENTS TO THE SELF-PACED LEARNING PROGRAM

How you see the self-paced nature of the course	*D/CR* (*n* = 8)		*Pass* (*n* = 21)		*N, W/D, unfinalised or unidentified* (*n* = 4)		*All* (*n* = 33)	
Very valuable teaching method	5	62.5%	8	38.1%	-	-	13	39.4%
Encourages mature approach	4	50.0%	11	52.4%	1	25.0%	16	48.5%
Source of anxiety	-	-	5	23.8%	-	-	5	15.2%
Encourages laziness	1	12.5%	8	38.1%	1	25.0%	10	30.3%
I tend to put things off	3	37.5%	10	47.6%	3	75.0%	16	48.5%

IDENTIFICATION OF POSITIVE AND NEGATIVE ATTITUDES

It was considered a more valuable exercise to identify students with positive and negative attitudes to KP1. This grouping was done on the basis of student responses to a number of items, for which they could receive a maximum of 5 points. A student with a positive attitude was one whose combined score was above the mean for the group on the following variables:

- saw self-paced instruction as a very valuable teaching method;
- saw self-paced instruction as encouraging a mature approach to study;
- saw the course as a whole as 'quite satisfactory' or 'very satisfactory';
- recommended the same course structure for future students.

The scores obtained by this method dichotomised neatly, with 15 respondents indicating positive attitudes and 18 indicating negative attitudes, very few 'borderline' cases, and with only one exception all those classified as 'positive' recommended the same course structure for future students.

ASSESSMENT OF MOTIVATION AND INTEREST

A similar exercise was carried out to assess the students' levels of motivation and interest, using their responses to the following questions:

- Factors influencing enrolment in the unit, including interest in the subject matter, feelings of competency in mathematics, or extrinsic factors such as satisfying employment, career, or course requirements. (The decision to accept such extrinsic factors as evidence of strong motivation was based on a study by Dahlke (1974), who found that the best predictors of completing a self-paced learning program were motivational factors to complete it, as judged by reasons for enrolling, especially vocational ones.)
- Level of interest in the subject matter of the course.
- Overall assessment of the course as useful or challenging.

From the answers to these questions, 17 students indicated high levels of interest and motivation. Five of these showed high levels of intrinsic motivation, in that they found the subject matter interesting and challenging, and did not consider extrinsic factors to have influenced their enrolment. Four students indicated little intrinsic interest but had been strongly influenced in their enrolment by extrinsic factors. The remainder indicated a balance of intrinsic and extrinsic factors.

On the other hand, 16 students were identified as having low levels of interest and motivation - i.e., they found the course boring and unchallenging, and could indicate few factors influencing enrolment.

RELATIONSHIP BETWEEN POSITIVE ATTITUDES AND LEVELS OF MOTIVATION

The following table indicates the relationship between attitudes and motivation.

TABLE 3: ATTITUDES AND MOTIVATION OF KP1 STUDENTS

Positive attitudes		(15)	*Negative attitudes*		(18)
High motivation		12	High motivation		5
Sub-groups:	high intrinsic	5	Sub-groups:	high intrinsic	0
	high extrinsic	2		high extrinsic	2
	both	5		both	3
Low motivation		3	Low motivation		13

It could be argued that these relationships are self-evident, and it is not my intention to suggest that these two groups of variables are mutually exclusive, but rather that the strong relationship between attitudes, motivation, and interest gives added value to the categories into which the students have been placed. When we look at the study habits of these different groups of students, we will see definite patterns emerging.

IDENTIFICATION OF STUDY HABITS AND WORKING STRATEGIES

The students were asked to describe in their own words (given a couple of examples as guidelines) the strategy they adopted for tackling the course. When the replies were analysed it was found that they fell into four identifiable categories:

(a) the student worked (or attempted to work) at a steady, even pace throughout the semester;

(b) the student worked at this subject when other subject demands were not too heavy;

(c) the student admitted to procrastinating;

(d) the student described a learning strategy as opposed to a working strategy, for example, keeping ahead of lectures, or taking frequent quizzes in order to learn from mistakes.

As well as each student's working strategy, one other factor was noted here: whether the student agreed with the statement that 'lack of deadlines encourages laziness', or 'I tend to put things off because of lack of deadlines'. Almost half of the students in the sample indicated agreement with this last statement.

USE OF ENTWISTLE'S 'APPROACHES TO STUDYING' INVENTORY

As was mentioned earlier, an independent survey of student study habits was conducted within the University in 1980, and scores on this inventory were available for 19 of the 33 students in the KP1 sample. This number is unfortunately too small for any statistical inferences to be made about the study habits of KP1 students as a group. On every factor except one, the factor labelled 'Disorganised Approach', this sample of KP1 students as a group obtained scores comparable with those for the 540 first-year students covered in the survey. The mean score of those 19 KP1 students on 'Disorganised Approach' (9•63) appeared to be considerably higher than the mean score for the entire group of 540 (6•39), and in fact a 't'-test revealed a significant difference at the •005 level. However, the apparent difference in 'Disorganised' scores between students with positive and negative attitudes (Positive 8•14, Negative 10•5) was not statistically significant.

RELATIONSHIPS BETWEEN ATTITUDES, MOTIVATION, AND STUDY HABITS OF KP1 STUDENTS

When we look at the study habits of the 12 students with positive attitudes and high levels of motivation and interest, we find that only three admitted to a tendency to laziness, procrastination, or 'putting things off', and only one (of five available scores) scored high on Entwistle's 'Disorganised' factor. The majority worked, or attempted to work, at a steady, even pace, including three who actually described 'learning' strategies. Only two worked at the subject when other subject demands were not too heavy. This group contained the two students in the sample who obtained Distinction, but only one of the six students who obtained Credit. Altogether, the group presents a picture of well-organised, competent and interested students with a mature approach to study.

Of the three students who had positive attitudes but lower levels of interest and motivation, two scored very high on Entwistle's 'Disorganised' factor (13 and 15). One of these described a learning strategy and achieved a Credit, but admitted to 'putting things off because of lack of deadlines'.

Contrasting this group with the 13 students with negative attitudes and low levels of motivation and interest, we found that every one of the 13 admitted to varying degrees of anxiety, procrastination, or laziness. This group contained all of the five students who felt that the self-paced nature of the course was 'a source of anxiety'. Of 10 available 'Disorganised' scores for the group, seven ranged from 11 to 15. Study habits were more variable among this group, with four working or attempting to work at a steady, even pace, and five working at the subject when other subject demands were not too heavy. The group contained three Credit level students, two who failed or withdrew, and one whose final result was not determined until some time after the completion of the semester. Overall, the picture presented is of a group of students who, regardless of their ability, employed study habits which left them feeling less than adequate when faced with a self-paced learning program.

The remaining five students in the sample, those whose attitude to the course was negative but who were apparently more highly motivated and interested, did not exhibit anxiety, procrastination, or disorganisation to the same degree.

COMPARISON BETWEEN KP1 and KP2

Before concluding, I would like briefly to draw attention to the pattern of responses received from the 16 students in KP2, who had a similar questionnaire and whose attitudes, motivation and study habits were subjected to the same analysis. KP2 students achieved higher positive attitude scores in general, with only three students falling below the mean for KP1 students. Only three of the 16 would not recommend the present course structure for future students. All the students with high levels of motivation and interest had positive attitudes to the course, and experienced few problems with anxiety or procrastination (see Table 4).

TABLE 4: ATTITUDES, MOTIVATION, INTEREST, AND PROBLEMS OF KP2 STUDENTS

	Positive attitudes (13)		*Negative attitudes* (3)	
High motivation	Anxiety or procrastination	2		0
	No problems	6		
	Total	8		
Borderline to low motivation	Anxiety or procrastination	3	Anxiety or procrastination	3
	No problems	2	No problems	0
	Total	5	Total	3

Finally, the responses from KP2 students to the question on working strategies revealed a different set of categories, with no student mentioning procrastination, and a sizeable proportion aiming to complete the course in a minimum amount of time and concentrate on other subjects.

CONCLUSION

The foregoing description of student behaviour in self-paced learning courses does not pretend to offer any definite conclusions about self-paced instruction in general. The sample size is small, and the data were extracted from an evaluation and not from an experimental study. A great deal of further information on the course conduct and student progress through the course is available and could be explored in detail in order to clarify some of the issues raised. This paper is presented as an indication of the kinds of information which can be extracted from an evaluation, and in the hope that some of the issues raised may be followed up by other investigators in the field.

Two conclusions can be drawn from this study. The first relates to the data on varying levels of student satisfaction with course structure, which indicate that students with lower levels of competency and interest in mathematics, such as were enrolled in KP1 and TRAD 1, tend to be less happy than the more able students with self-directed instruction, and may prefer a more traditional and more highly directed course structure. The second, which serves to strengthen the above, is that in this particular course, KP1, satisfaction with self-paced instruction was strongly related to organised study habits, maturity, motivation, and interest, but not to ability as measured by results. Most of you will probably agree that the same factors correlate highly with satisfaction in traditional courses also.

NOTE

[1] I am indebted to Dr Jim Millar, of the Northern Rivers College of Advanced Education, who took part in the preliminary discussions with the department, for the concept of 'working strategies' which was incorporated into the final questionnaire.

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APPENDIX: Selected Items from Questionnaire for Keller Plan Courses

What factors influenced you to enrol in this unit? (You may tick more than one box.)

- Interest in the subject matter ☐
- Was good at maths at school ☐
- Easy grade expected ☐
- As a pre-requisite for chosen course ☐
- To satisfy employment/career requirements ☐
- Recommended by course advisor ☐
- To make up required number of units ☐
- Other ☐

Please indicate which of the following attitudes best describes how you feel about the self-paced nature of this course. (You may tick more than one box.)

	Yes	No
A very valuable teaching method	☐	☐
Encourages a mature approach to study	☐	☐
Is a source of anxiety	☐	☐
Lack of deadlines encourages laziness	☐	☐
I tend to put things off because of the lack of deadlines	☐	☐

This course has been deliberately designed to allow each student to choose a strategy for tackling study in the manner best suited to each individual's needs. Examples of different strategies could be: working at an even pace until the course is completed; or, completing the course in a minimum time and then devoting time to other subjects.

Try and formulate your strategy for studying this course into a concise paragraph.

TEACHING ESSAY WRITING TO FIRST YEAR SOCIAL SCIENCE STUDENTS

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The English Adviser scheme for Social Science students at La Trobe University started in May 1979, when a full-time tutor was appointed to teach essay writing and other study skills as needed. To indicate how the scheme works and the need there seems to have been for it, this paper will present a brief sketch of the framework and growth of the scheme, then look at typical problems students experience with essay writing and, based on that, outline our approaches to teaching.

All students taking one or more courses in the School are eligible for assistance. They are either referred by tutors, or they come as a result of advertising and reports from friends. Some come only once or twice with a specific problem; others receive prolonged tuition individually or in groups.

During the two years this assistance has been available, 439 students have made use of it. In 1979 the number was 94. Last year another 124 students attended; this number could have been larger, but essays tend to be due around the same dates, and this creates some extreme peak periods, so it happened repeatedly that the intake had to be stopped. This bottleneck led to the appointment this year of a part-time tutor working on a 60% basis. The extra help plus a shift in emphasis from individual tuition to group instruction has meant that we have been able to cope with a dramatic increase in demand without complete collapse. During first term this year, 160 students enrolled in essay writing and/or study skills courses, while another 58 have received individual tuition, in all 218 against 56 for the same period last year.

One very pleasing aspect of this increase is the fact that, whereas almost all the students who sought assistance in 1979 had been referred by teachers, self-referred students motivated by reports from friends and older students this year account for more than 90%. This is pleasing because self-referred students are usually easier to teach. They are more motivated; they know what to expect and are prepared to make an effort, because they know from friends that it helps; and, perhaps underlying this attitude: there is no resentfulness or feeling of stigma to be overcome, which is quite often the case with students referred by teachers.

This, then, is the framework and numerical development of the scheme, but why do teachers send students to get tuition in essay writing? Why do students seek such tuition? What goes wrong? Teachers generally refer students because the students 'can't spell', 'can't write a sentence', or 'can't put an essay together'. They call it a literacy problem and blame the schools. Unfortunately, the problem is far more complex than that, and I had not been long in the job before I realized that I would have to start classifying the problems I met. A first broad grouping distinguished between (a) basic writing skills, (b) reasoning skills, and (c) adjusting problems.

By a lack of basic writing skills I mean mistakes in morphology and syntax which appear in the student's writing irrespective of context. Although this would seem a fairly simple aspect to improve, it has often proved the hardest in which to achieve any progress. Part of the reason is exactly that these mistakes are independent of context so that to correct them means extra time and effort besides practice in detaching the mind from context and concentrating it on form, a skill most students seem to have little practice in. Another part of the reason may be that when people have been writing for as many years as university students have, certain mistakes can have become a habit and, consequently, to improve becomes a laborious process of unlearning by constant and conscious attention, work for which many students find it hard to afford the time.

There are students with these problems and they are literacy and remedial problems, but they are not nearly as common as generally assumed. What often happens is that a problem in reasoning or adjusting comes disguised as a literacy problem and is diagnosed as such. Look, for instance, at that most popular of all umbrella terms among teachers, 'clumsy expression'. This comment can cover anything from a simple punctuation problem, to a phrase lifted from the student's spoken Australian English, to an underlying language structure from a migrant or overseas student's parent language, to an insufficient grasp of the structural behaviour of a new term in a specific subject register, to a badly understood concept. So we are quickly into one of the other two areas, reasoning or adjusting skills; and so are the subject teachers, for I have had only one student referred to me with pure, unadulterated literacy problems. A student who does not use the apostrophe correctly, confuses 'their' and 'there', cannot spell or whatever is not likely to be picked as needing 'remedial' English unless these problems are combined with faulty essay structure, faulty argument, failure to answer the question, or wrong use of register (i.e., basic vocabulary plus subject-specific terminology), to mention only a few, and these are all developmental aspects belonging in one of the other two groups.

By a lack of reasoning skills I mean an inability on the part of the students to see the specific aims of what they are doing and to adapt their methods to those aims. It seems to be a mental immaturity or, occasionally, inflexibility which I most decidedly do not want to call an inability to think, rather a failure to structure their thinking and language to the demands of a specific discipline; and they fail to do this because they are in a wider sense unaware of the structure in which they work. Thus they are unaware of the need to distinguish between disciplines and of the necessity to recognize the differences between studying the same discipline at secondary and tertiary level. It would seem that especially the latter aspect is merely an adjusting problem, but in many cases it carries over well into second and occasionally even into third year.

These problems are worse than may at first appear. It is possible for students to perform reasonably well in tutorials without consciously making such distinctions, because they work there with a specific discipline and under guidance. But when it comes to essay writing the students are on their own; to make matters worse, they often work simultaneously on essays from different disciplines and often there is a superficial similarity between the questions. Problems in this area appear for instance as a failure to answer the question, failure to see what constitutes evidence, contradictory arguments, or a tendency to argue in the sense of quarrelling with their sources rather than to build up an argument, lack of organisation, or lack of skill in using sources. As these problems arise out of demands specific for each discipline - even to some extent for each course, they are, to a large extent, the responsibility of the subject teacher. However, they are often not recognized as reasoning problems. For one thing, it is often difficult, by reading alone, to distinguish between a faulty sentence construction and a concept which has not been understood or thought out sufficiently. Thus it often happens that a teacher, thanks to his background knowledge, will recognize a particular concept in the gobbledegook of a student's essay and write comments like 'I think you are on to the right thing, but your expression lets you down'. When, however, you analyse the essay with the student and ask him 'What did you want to say here?', it becomes clear that, very often, the concept was not understood, and that the student had nothing he wanted to say with it; he may simply have thought that mentioning it would be enough as it proves he has listened in class.

Even when the students understand that they have to do something with their concepts, their struggle to understand them and to see their implications before the essay deadline dwarfs the importance of sentence construction. Added to this is the fact that very few students are conscious of the role of language as a conveyor of thought; it is actually quite a common belief that it is 'unacademic' to write simple and correct English, and that to be concerned about literacy is a snobbish, elitist attitude. Where they have it from I don't know, but the result is that some students do not write as well as they could.

Finally, adjustment problems: these, naturally, have an individual flavour, so they come in a multitude of shapes and forms. In the following I shall trace only a few of the most common ones.

Over the last two years we have given all Politics I students a diagnostic essay early in the year, in order to get assistance through to those who need it before they start to accumulate marks. Many of the students referred on the basis of this essay were very angry; they all had high H.S.C. scores and were proud of their records. They claimed that they could write much better than the essay indicated, and they brought H.S.C. papers to prove this claim. They were right; the H.S.C. essays did show a much firmer sense of structure and grasp of basic writing skills than the diagnostic essay had indicated. However, these students' problems with their first term essays from all their courses confirmed the impression given by the diagnostic essay.

Working with these students, in some cases up to half a year, I found there was a shock effect at play from which the students only recovered gradually as they adapted to the new demands. What seemed to have happened was that the student had learnt to structure the content and ideas of his H.S.C subjects within the rules of his language. But, under the pressure of widely extended vocabulary and widely different demands to approach and argument that follows with university study, the student's grasp of basic language rules proved too tenuous and broke down temporarily, a situation which might be compared with the problems of organizing an industrial development boom to fit into existing social patterns while simultaneously modifying those patterns to encompass the development.

Why, then, should this transition period be so hard to cope with? There does not seem to be a direct link to marks achieved in H.S.C. English; but if we look at the social background of the students who are most likely to ask for assistance, part of an answer may be found.

Well over half of my students have a migrant background. I call them the 'disguised foreigners'. They speak like Australians, but they have most of the problems of overseas students combined with the necessity to resolve the conflicting values and demands of their two cultures on a personal level, which overseas students do not. Other students come from a city working-class background, the country, or overseas. There are several mature age students and, for good measure, a professional Australian Rules player. The one common element for all of these is the difficulty of bridging the culture gap between the social reality of past experience and the social reality of the university culture. It may be significant that I have only had three students who had parents with a university background. (There is of course a number of students whose backgrounds I do not know, but not enough to change this pattern). I should perhaps emphasize that I never ask a student his background, but they almost all tell me, and always during the process of discussing an essay. Perhaps I should explain that my approach to helping a student with an essay is only secondarily 'You should do this'. The first step is always 'What do you intend to do?' Or, if a point is unclear, apparently misunderstood or irrelevant, 'Why did you do this?' 'What did you want to say?' 'How do you see it link up with the rest of the paper?' It is in the process of answering these questions that they tell me about their backgrounds. This indicates to me that essay writing is not a neutral impersonal exercise, but a deeply personal process in which the dual demands of objectivity and personal development come into conflict, may even be experienced as contradictory. The essay, in other words, becomes a cultural battleground, a kind of border fighting area. To avoid the problem, the student will often attempt to step outside himself, to ask 'What do "They" want?' He will try to assume the identity of 'They' and answer from that angle. If he passes, he will then interpret this displacement process as 'objectivity'.

This problem of bridging a culture gap is apparent not only in the drop in literacy levels, but in every response of the students to their new environment. In fact, the first thing to impress upon oneself when dealing with students is, in a slight rewriting of Murphy's Law: 'Anything that can be misunderstood, will be misunderstood', and further, 'Anything that cannot be misunderstood can be misunderstood'. A few examples will show this.

We all try to interpret the New in terms of the Known, and so students attempt to interpret first-year university studies in the light of H.S.C., while teachers never seem to imagine that it could be seen in the light of anything but second- and third-year university studies.

Many students start with the impression that they have 'made it'. H.S.C. is 'the big hassle', university will be 'a breeze'.[1] This impression is strengthened by their first few weeks in university. They first find out that they have only one lecture and one tutorial per week per course; this is much less than they have in H.S.C., so many take up an extra subject in delight, while others get involved with clubs, hobbies, friends and so on. Next they hear that they will not have to produce any essays for the first six weeks or so, and as they have no experience in accumulating information for an essay over such a length of time, they conclude that this means five and a half weeks of nothing to do. So by the time they find out, they are well behind, and as their skills are hardly sufficient to cope, let alone catch up, they panic. To hand out essay questions early is no help, for they will keep waiting until the last week before they abandon the expectation that the teacher will tell them 'the answer' to the essay. Handing out long reading lists and impressing upon them the importance of independent study will not help either, for they understand 'independent study' only as 'doing your homework', and nobody here sets them any homework. Furthermore, the reading lists are so daunting in length that it is beyond the comprehension of many that any teacher could be serious about them. Eventually, they realise what is meant by 'studying', at least as regards quantity, but by then they are likely to be caught up in other activities to such an extent that they cannot fit in their studies without encountering social and personal problems, and one thing worth remembering here is that the prevailing Australian mentality, stressing the importance of belonging to peer groups, has made many students ill-equipped to handle the highly individualistic process that university studies are.

Another large group starts from the opposite angle but ends in much the same quandary. These students come expecting university to be hard; they start working at once, but following the work patterns they have developed at school. They read every word in their texts and conscientiously take notes on everything, afraid to miss the slightest bit of information. They do not analyse, they memorise, and their concern for the demands of the moment never lets them relax enough to consider the perspectives of what they are doing, which alone could help them sift their material. To teach them reading techniques and other study skills is only useful for them if the teaching helps them clarify these perspectives, otherwise they will not have the confidence to apply them, nor indeed will they be able to.

Yet, this is only the beginning. When both groups eventually start on their first essays, they tend to look at the word length rather than the question. From the teacher's point of view a first essay is short compared to later essays, but from the student's point of view it is approximately twice as long as anything they have ever done before; so instead of beginning to marshall what they know, they panic. The task grows out of all proportion, they cram read feverishly and then, finally, they seek assistance complaining about mental blocks which are, in reality, nothing but mental indigestion.

It is true that many tutors do much to help their students through that first essay, but they run into one great obstacle, which is that the students do not trust them. Most students have had at least one teacher during H.S.C. whose advice on essay writing they trust because exams have proved it sound. Their new tutor's advice has not yet been tested in that way, so many actually go back to their H.S.C. teachers to get advice for their first essay rather than asking their tutor, and if the two teachers contradict each other, the H.S.C. teacher is likely to carry the day until the mistake is clear in the mark of at least one essay. Even then, the student is more likely to think that the tutor has been biased and that he has been confronted with a new kind of essay with new demands to structure and style. This is so because the students are so convinced that H.S.C has qualified them for university in the sense that what you learn there is what you need for your degree, while university teachers have been so long in the environment that their advice tends to take the shape of labels, easily understood by people of similar background, rather than explanations firmly addressed to people new to the processes.

In fact, most essay guides are perfectly adequate for people who do not need them, but they are of no use, and often worse than none, for those who cannot write an essay. For instance, 'You are asked to give your personal opinion'; what many students see as 'personal opinion' is an irrational quality for which they need not, and indeed cannot, account, so that is how they will answer the question. Their teacher, then, calls the essay prejudiced or biased, and the student is confused. Obviously, it is especially dangerous to give this kind of guideline in relation to a controversial issue, and, obviously, that is the exact place where it is most likely to be given. It would be much safer to say something like 'You are asked to look at what your sources say for and against this issue, then determine whom you think is right, and why'. Another example is 'Marks will be given for originality and independence of mind'. These qualities are to many students near synonymous with 'imagination' which means that to write an essay requiring these qualities you cannot rely on source material. And, finally, what is 'sufficient and relevant research' which many essay guides demand? To many, research is a mystical quality or a magician's trick quite unrelated to reading or other work they may be asked to undertake.

Another very common problem area is the handling of source material, footnotes, bibliographical detail and plagiarism. It seems to be a source of constant wonder to teachers that students cannot get these aspects right, but it should not be. It is true for most thinking people that if they cannot see the purpose of a thing, they tend to find it impossible to learn, and bothersome to do , and they will skip it if they can get away with it.

Now, it is well known that new students cannot use the library, and how many of them will ever have tried to order an uncommon book in a bookstore? It follows that they have no experience in what bibliographical detail is for and therefore find it hard to appreciate the necessity of being exact. Furthermore, they have really no idea of the aim of the learning process they are undergoing in essay writing. Thus many students fail to give correct references because what they have is 'near enough' for the teacher to recognize the text, and 'He' knows all the books anyway, so they would feel right fools sitting there writing it all out. Further, they are used to composing essays by lifting slabs of texts from their sources and combining them without quotation marks or footnotes, and they have no idea that that is called plagiarism. Consequently, when essay guides thunder about the sin of plagiarism and the dire consequences of committing this sin, but find it sufficient to explain the act by giving its legal definition, they completely miss the point. It takes, first, an explanation preferably with an example, and an illustration of how to change a plagiarism into a reference. Then it takes reassurance that using somebody else's idea is not going to detract from the student's mark; quite the reverse: not using somebody else's idea _is_ likely to detract; and to make that sound convincing, it is generally necessary to discuss what university essays are supposed to do and to relate that to the role of universities in general.

Few if any first-year students would deliberately cheat in their first essay, so if they have plagiarized they need teaching rather than threats, and if they then do it again it is worth checking, before thinking of punishing, that they did understand. As I said before, everything that can be misunderstood will be misunderstood, and that which a teacher thinks has finally been understood has more likely only been misunderstood in a new way.

However, all these problems are really not hard to solve once they are understood. They are a matter of patience, willingness to listen and to look at our own little world with an outsider's eyes and, finally, teaching. Where these elements are lacking, however, misunderstandings will arise between teacher and student which can have very serious effects on the student. As a teacher, one must keep in mind that it will never occur to a student who does not intend to cheat that his behaviour can be so interpreted, and this goes too for a student who is not lazy or uninterested, but appears so. Where these misunderstandings occur, the teachers must bear the major part of the blame.

The whole vexed problem of 'plagiarism' is only one danger zone; the following highly selective examples illustrate a couple more.

Occasionally, I come across a directly irresponsibly structured course. One particular example featured an essay question, incompetently formulated, 3,000 words long, worth 4% of the total marks, the kind of task that only a very good student can do, and only a very intimidated student is silly enough to attempt. I shall not go into any further detail about these courses, the amount of trouble they cause or the fantastic evidence they provide that students cannot write these days. But there is one point I want to make: it is quite common for a teacher whose own demands are realistic to judge a student's failure to fulfil them only on the background of his own course, and consequently to conclude that the student is lazy, disinterested or irresponsible. This may not be so. The effects of a badly structured course spill over into other courses; and it is predictable that a cornered student will choose to attempt the unreasonable task, while turning to the teacher he feels to be most humane for extensions etc. This reaction is not the same as exploiting a 'soft' teacher, and to 'toughen up' on the student is hardly the answer.

Altogether, it is worth looking into why students ask for extensions or fail to hand in essays. In one case a student sought assistance with a particular paper after the deadline. She explained that not one in her tutorial group had handed in on the due date. The student felt that the tutor took no interest in them, couldn't care less about them as human beings. This was due to the fact that despite the students' failure to hand in the paper, the tutor had never asked how they were going or if they had problems with it. The students - all very new - felt that as the tutor did not take the first step, they could not talk to him about the paper, and, unfortunately, none of them understood what was asked, therefore they had not handed in. When I explained to this student that they had to take the initiative, and that their failure to approach their tutor with the problem, and their failure to meet the deadline without signs of any work, had probably been interpreted by the tutor as laziness and lack of motivation, she was shocked.

These instances are all examples of a breakdown in communication between teacher and student; they are problems of adjusting to a new environment with new expectations. To some extent this process will always cause problems, but it seems to me that it is often made unnecessarily hard. It seems, in fact, that with assistance from modal verbs, the approach to teaching and to students is sometimes removed one step from reality: 'The students should be able to do this', 'they shouldn't be here'. Is this because it is so much easier an approach than to acknowledge that they are here and this is what they can do?

So, how do we teach, and what can we do to improve first-year teaching? Until this year most assistance has been individual tuition, which has proved both effective and popular with the students. In fact many revel in their once-weekly opportunity of exclusive attention. The popularity is due to a variety of psychological reasons which I shall not elaborate on here, but the effectiveness has three good reasons. The most important one can be expressed by a slight rewriting of Tolstoy: all successful students are like one another, each unsuccessful student is unsuccessful in his own way. Individual tuition provides an environment in which that unsuccessfulness can be traced, and this, I think, is the major reason for its effectiveness. Another reason is the opportunity to tie the methods taught directly to the courses taken by the student. This, too, is important; for, when you don't know either, it is much easier to see the general in the specific than the specific in the general. Finally, in the individual tuition, the initiative is the student's; he decides what to ask, tell or learn. In a class, this initiative tends to pass to the teacher who has to provide a common denominator in order to ensure that everybody gets something out of the session.

The most satisfactory method for very new students is to have them bring in their first essay question as soon as they get it. During the period in which they work on it, they come in twice a week for periods of 15-30 minutes. They tell me what they have done and what they intend to do next. During this process I introduce various methods at the stages when the student is ready to use them. It is much like teaching a child to ride a bike: the child does the steering and pedalling, while you hang on to the luggage carrier to keep the balance. This process gives the student confidence and a conscious knowledge of the process involved.

Around the beginning of second term, we start getting the students who have failed their first essay. In this case, the assistance starts with an analysis of the paper which is aimed at bringing out each student's particular misunderstandings. What follows after that is generally a more or less modified version of the model above. But we invariably run into problems which could have been avoided: their confidence is low, there are bad marks which have to be made up for, and there is pressure from a backlog of work. So the student tends to panic; he does not have the patience for structured learning, but demands emergency aid instead.

There are drawbacks to the individual tuition system. The most obvious one is the limitation to the number of students one person can help. Another is that it tends to isolate the student with a problem - although the queue outside the door is often long enough for them to make friends there. Also, although the problem analysis is fairly different from student to student, once the learning process starts there is great overlap both in the area of study methods and in remedial English. So the overriding self-impression for the poor adviser at the end of a busy day is generally that of a record stuck in the groove.

To help with these problems, individual tuition is now often combined with one or two lectures in a specific course. The first is given when the essay question is handed out. It is structured directly to the essay question set. The aim is to alert the students to the process involved and make them aware that there is extra assistance available if they need it. This lecture does not attempt to teach them 'essay-writing'. The second lecture is given after the essays have been marked and handed back. The tutors provide essays typical of the different grades. I select passages from each which are distributed to the students and used to illustrate aspects of structure and argument.[2]

These sessions have proved fairly effective and very popular. The difficult part is to get an atmosphere in a lecture theatre with about a hundred students and several teachers which is informal and secure enough for the students to participate, and it does need a dialectic approach to be most useful. It would be better done in tutorials, and it could actually be done by the tutors themselves, but, whereas there are many teachers who are happy to give their lecture time, they are much more sparing with their tutorial time, and some seem frightened at the idea that they might themselves be able to explain why they mark the way they do, and why they think one essay better than another.

An alternative solution is to establish small groups of students who seek assistance individually. This has the advantage of breaking the student's isolation, they make friends, and they realize that there are other people with problems which in itself seems to help. But to achieve any efficient teaching, it has proved important that the students have a course in common rather than that they are on the same level of competence. This again lends support to the understanding that writing and language problems are interwoven with conceptualizing in and adjusting to a specific course.

Group work is of course more efficient for the teacher, and as long as the groups are kept small, it is possible to achieve a similar openness and response from the students' side as that which makes the individual tuition so useful. It is, however, no substitute, and group work must still be supplemented with the opportunity for the students to seek individual help when the need arises.

Discussing all these aspects with a Politics I teacher last year, we decided to plan a course in study and writing skills to run over 10 weeks early this year as a pilot project for incorporating these elements into first-year courses. The actual design of the course fell to me; the Politics teachers selected all the articles and structured the lectures specifically for this course. They also provided the title, 'Academic Skills', which helped greatly in getting the course accepted both by other teachers and by students as a non-remedial, perfectly respectable 'methods' course. The syllabus is included in Appendix I. Attendance was restricted to students from the four Politics I courses. The material was selected from the four reading lists to form one coherent theme which, although not taught specifically in any one of the four courses, still ran through them all as common background knowledge. The course was planned to start three weeks into term one. This allowed time for the students to find out that they might need help, while still starting early enough for them to gain some experience before they had to produce their first essays. The individual sessions were planned so that we started with note taking and reading techniques first, and, as we hoped, around the time when they would begin to realize they were getting into a mess with their notes and that they would actually have to attack their reading lists. Then around the time when the first essay questions were handed out, we started discussing essay writing, and everything said there was directed towards the essays the students had to write. Over the term break these students can bring in their essays for individual help if they need it.

After the May break we start on less urgent and more sophisticated aspects of study. First, exam techniques, which they will need in July. One thing is to write an essay, where a student can keep thinking and changing right up till the last proofreading, another is to write an exam paper, where he needs to be ready with a body of information and to be able to manipulate that body to answer differently formulated questions within a set time.

Around June a few students also start to complain that they do not get anything out of their tutorials; so we look at tutorial participation and various aspects of criticism, the last aspect because it is a strenuous exercise to convince students that 'to criticize' is not synonymous with saying 'you are stupid'.

These are the theoretical aspects; they are reinforced throughout the course with writing exercises. Thus, for instance, when the students have discussed note-taking, they are asked to apply this to isolate the thesis and main argument in an article and then to present the results in essay form.

The exercises progress from the most basic and least complex of analytical methods towards more complex. This is done to build up towards first-term essays. For, generally, first-term essays are easier than later ones only in the sense that the word limit is smaller and the reading lists shorter. In application of analytical skills, however, they are as complex as any later essays. Further, analysing essay questions with students, I have found that many failures to answer a question are due to the fact that the essay asks for a process too complex for the student to grasp, very often simply because he cannot see the purpose of it, or is not used to treating books without reverence. In such cases he will respond by mentally rewriting the question into a formulation demanding a process he can understand and for which he can see a purpose. The exercise set in class nine (Appendix 1) is notorious for causing that problem.

There are two further aims in setting these exercises. One is that it sets the students writing early and quickly with immediate feedback which is crucial for learning. The second is to provide an environment in which the students can safely use and explore the different registers, concepts and analytical processes linked with their courses without risking marks. This is one reason for building the course on course material. Another is the understanding that study skills are nothing but the outward expression of an inner reasoning process. The pattern for analysis of written work is the same as for large groups: good and bad examples are typed, distributed and discussed in class.

The underlying thesis of this course is for me the aim to get my students to see the different aspects of their studies as one unified whole: when you write, you provide in structure and presentation what you expect when you read; when you take notes, you peel your lecture or text down to the plan you have to build up for your own writing; that a student can, with his questions, help educate an incoherent and unprepared lecturer and that he has part of the responsibility for a boring, useless tutorial; or, simply, that learning is a double-sided process.

Although the course has been a success in its present form I hope that it will become even more firmly embodied in the first-year courses. The first step will be an attempt to establish two-hour tutorials in each first-year course, the first hour taken by the subject tutor dealing with the content of the course, the next taken by the language tutor dealing with methods, the 'how', and 'why this'. Part of the reason for this move is simply that much of this teaching could be done better by the subject teachers, and it must eventually be taken over by them if we are not to establish a whole new class of university teachers. Another reason is that despite the publicity given this course at the start, students are now coming with failed essays and swollen eyes who should have taken the course but never imagined that they would need assistance. This is frustrating, not only because of the extra time involved in seeing them one by one, but especially because the course was planned and timed to save them this humiliation. But how do you convince an H.S.C. student with A's or B's in English that they will need to learn how to write an essay? And these are the marks that these students have. If a methods course were compulsory, we would reach these students, and the final elements of embarrassment in attending would disappear. The argument that this would take the time of many good students who do not really need it is invalid. There is no such thing as a good student who cannot become a better student, and a course in methods has much to offer good students.

At La Trobe, discussion of essays by the language teacher before and after they have been written and marked is becoming a regular feature in several courses, as are also the handing out and discussion of model essays. It is becoming more and more accepted that first essays can be 'recycled', as it is called, which - rightly - emphasizes the learning process rather than the marking process. Further, in one course, the first-term essay has been split into two: one 750 word paper due after four weeks, marked, discussed with the student and handed back in time for the students to draw on the experience for the next paper (1,500 - 2,000 words) due at the end of the term break. On top of this, there is a diagnostic essay for all Politics I students, which was the beginning of these changes; it still serves a purpose, but I hope that by next year it will be superfluous.

Finally, the ten-week course described above is the firmest piece of co-ordination we have managed yet. It is all in the realization that it is not necessarily the silliest students who have the worst essay writing problems.

[1] Interestingly enough, a recent report, 'Learning Skills: a Review of Needs and Services to Students at the University of Melbourne' (September 1980) uses exactly the same phrase to quote students, so this attitude cannot be characteristic of La Trobe students only. The report is available for loan from the Student Counselling Service and Centre for the Study of Higher Education, Melbourne University.

[2] I am grateful for this idea to the Communication and Study Skills Unit at the Australian National University.

APPENDIX I: ACADEMIC SKILLS SYLLABUS

27/3 I. Note-taking techniques.

Lecture 1. 15-20 mins. with note-taking; discussion of students' notes and note-taking techniques.
Exercise 1. Note-taking during the week.
Prepare: Article I related to lecture, to be read for Class II.

3/4 II. Reading for various purposes.

Analyse general structure of written material as illustrated by Article I.
Discussion of reading techniques such as skimming, close reading. Tie up with note-taking techniques.
Exercise 2, short article II - write an outline to the article and a one-page essay stating the author's thesis and main arguments.

10/4 III. Retention and long-term study/exam planning.

Hand in Exercise 2.
2 mins. prep. of last lecture notes.
Lecture 2, 25 mins. (sequence to Lecture 1, must contain references).
Discuss note-taking: 'How have you done it?'
'What have you taken down?'
By class participation set up sample notes on blackboard.
Theory: How to use notes and underlinings to aid memory retention.
Long-term study and exam planning.
Exercise 3, read one long article III, or skim a book, to locate one topic, take notes/underline and write a summary.

24/4 IV. Essay writing I.

Hand in Exercise 3.
Structure and language analysis of Exercise 1.
Discuss planning, outlining, writing and revising an essay.
Exercise 4 (a) analyse and underline at least two articles IV a & b; write a 500-word essay. Compare/contrast main ideas;
(b) language exercise.

1/5 V. Essay writing II.

Hand in Exercise 4.
Exercise 3 back.
Discuss referencing: footnotes, endnotes, bibliography.
Using sources: quoting, summary, plagiarizing.
Exercise 5 (a) compile and correctly present a reading list (for first-term essay?);
(b) language exercise.

8/5 VI. Essay writing III (related to first-term essay).

Structure and language analysis of Exercise 4.
Show typical grades: N - A.
Analysis of essay questions (first-term essay questions) outlining and planning again.
No homework over holiday period.

** BREAK **

5/6 VII. Stylistic analysis.

Good and bad examples of Exercise 4 distributed and analysed: grammar, sentence construction, vocabulary, punctuation, etc.
Exercise 7 (a) 45 minutes work - deadline 2 weeks: write approximately 700-word essay (question based on course lectures/articles). Answer in point form two more questions formulated to cover same material, but approaching it from different angles;
(b) rewrite and correct various paragraphs and sentences found for the purpose.

12/6 VIII. Tutorial participation/presentation of tutorial papers.

Hand in Exercise 7(b).
Discuss tutorials - aims and processes.
Exercise 8 (a) good and bad articles VIII a & b to be read, four students to prepare 5-min. tute papers on articles;
(b) language exercise.

19/6 IX. How to be critical (in tutorial form).

Hand in Exercise 7(a).
Four people present articles; the rest prepare to argue with them. How to present, how to argue, how to interrupt.
Analysis of students' arguments and presentation.
What is fair/unfair criticism.
How to 'cover up' and other tricks as needed.
Exercise 9 (to hand in mid-week), two articles, one criticising the other: is the critique justified?

26/6 X. Discussion of Exercise 7(a) and Exercise 9.

** FINALE **

ANDRAGOGY NOT PEDAGOGY

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> "This science should be called 'andragogy' not 'pedagogy' because its purpose is no longer to train children and adolescents, but man throughout his life."
> (FURTER in the FAURE REPORT, p.116).

1. Introduction

This paper examines the question of adult learning and correspondingly, the teaching of adults in order to outline:

1) What is known at this time,
2) A statement of perceived priorities for basic research studies,
3) A suggestion for the most profitable research thrust, over the next few years.

In order to prepare for this task a literature search was conducted through the ERIC system and this print out, together with the books and articles cited in the references, are available should anyone be interested.

2. ADULT LEARNING AND TEACHING: WHAT IS KNOWN

2.1 Introduction

For my purposes here I will define the adult learner as anyone between the ages of 25-50 and will not restrict it only to people in formal education.

What is known about adult learning can be summed up very simply - not much. This is not to say however that the literature does not provide hints and hypotheses about facilitating adult learning, but there is little being done world-wide and almost none in Australia which is directly "on-topic". There are people working on topics such as "memory decline with ageing" but these studies usually concentrate on geriatrics. The work of Professor John Biggs at the University of Newcastle and the investigations by Dr. Leo West, Professor Peter Fensham and Dr. Jan Garrard are also relevant and extendible to the adult learner.

2.2 The Adult Learner

We do know a lot about adult learners themselves; we know who they are, why they enter higher education, how successful they are, the problems they have (both academically and personally), as well as the reactions of other students and academic staff towards them. A monograph synthesizing this material has been published, by the Higher Education Advisory and Research Unit (HEARU) at Monash University.

The main gaps in our knowledge are explanations of "why" they tend to perform so well", "how they learn", "what strategies do they use and do these differ from 'normal age' students"? Apart from one germinal chapter by Knox (1977), these questions appear to be unresearched, and therefore an answer to the second item in the introduction on "perceived priorities" is difficult to answer. So, let us look at what is stated in the literature and then attempt to propose the "most profitable" research thrust. One way to do this is to, first, look at the limited material with a direct "adult learner" connection, and then, secondly, look at other areas which could be extended to encompass adult learning.

2.3 Findings from the Adult Learning literature

The majority of this section leans heavily on Alan Knox' (1977) book as this was the most recent and most comprehensive source. In the summary of the chapter on adult learning he said (p.464):

> "Learning achievement is modified by various characteristics of the individual and the learning context. Included are physical condition, social adjustment, content relevance, pacing, socio-economic status, social change and personal outlook."

Immediately one can see that the "modifiers" are the same modifiers which affect all learning irrespective of the age of the learner, so we are dealing with differences within modifiers rather than looking for a novel set of conditions.

The following statements refer to these "within modifier" differences as described by Knox:

- Fluid intelligence, such as short-term memory and abstract reasoning - a gradual decline with age (p.464).
- Crystallized intelligence, such as general information and formal reasoning - gradual increase throughout adulthood (p.464).
- Approach to learning - preference for structure and self-directedness (p.465).
- Recency - adults with more recent educational experience tend to learn more effectively (p.465).
- Cognitive structure - the more detailed cognitive structure acquired by older students can facilitate learning through the provision of more "hooks" on which new information can be hung, but can also be a problem through interfering with incoming information in the search for meaningful connections (p.465).

- Time for learning - adults require more time and more practice to master new verbal material (p.466).
- Performance - any decline in educational performance by older students reflects a "speed deficit" rather than a decline in learning power (p.467).
- Transfer - ability to transfer learning tends to decline with age (p.467).

A paper by Hunter and McCants (1977) describing the results from the Canfield Learning Styles Inventory agrees with Knox about the adult learners' desire for logical organization and detailed structure in their learning situation. In addition Hunter and McCants described other learning modes of older students which were significantly different from those of younger students. They have a preference for reading and listening and a dislike for pictorial presentations and direct experiential learning.

Knox also pointed out the confusion in the literature particularly between the findings from cross-sectional and longitudinal studies. See Table 1.

The Knox findings suggest techniques for teaching adults which are fairly obvious; viz, a greater care with the structure of the material to be learned and of the process of teaching, less emphasis on memory work and speed, etc. One other writer, an ex-mature age female student stated that the teacher of adult students should

> "1. recognize that the locus of responsibility for learning rests with the learner
> 2. be person-centred
> 3. be a 'need-meeting' teacher for a 'goal-striving' learner
> 4. be friendly
> 5. act as a catalyst to release latent curiosity and creativity."
>
> (Skelhorne, 1975, p.34)

But again, not only adult learners would benefit from such an approach.

2.4 Associated studies

This section looks at the few studies that were found on topics not previously mentioned, which have potential for increasing our understanding of the adult learner.

Valle and Frieze (1976) looked at the learner's initial expectation of success in relation to later performance. The investigation sought to identify the stability of the cause which the student attributed to his performance level, See Table 2.

Havighurst (1980) talked about the "developmental discontinuity" as a way of describing the transition between early and middle adulthood (see Levinson, 1977) which suggests a need for different educational practices. But it is only a suggestion; a challenge to educational researchers to learn more about this mid-life transition and devise appropriate teaching/learning strategies.

In a ten-year longitudinal study of field-dependent and field-independent students from school to college, Witkin et al. (1977a) reconfirmed the finding that "... field-independent students have been found to do significantly better in sciences and mathematics, architecture and engineering than more field-dependent students" (p.209). In a review of recent research by Witkin et al. (1977b) one section looked at how teachers teach and another at how teachers and students interact. While these studies do not refer to adult learners *per se* the extensions of the findings are obvious; for example "... field-dependent teachers favor teaching situations that allow interaction with students, more field-independent teachers prefer teaching situations that are impersonal in nature and oriented towards the more cognitive aspects of teaching" (p.28), and "... teachers may indeed do better with students similar to themselves in cognitive style, and students may learn more effectively when taught by teachers matched to them in cognitive style" (p.34).

In the literature search particular attention was paid to the following areas and key authors, it was revealing that when tied to "adult learning" no studies were found.

- Anxiety (Eysenck)
- Achievement Motivation (McClelland)
- Extraversion/Introversion (Eysenck)
- Dogmatism (Rokeach)
- Divergence (Hudson)
- Intolerance of Ambiguity (Soueif)
- Need Achievement (McClelland)
- Fear of Failure (Atkinson & Feather)
- Academic Values (Clark & Trow)
- Role Conflicts (Biddle)

The same result was also found in the areas of cognitive psychology and information processing, however there is some work on a Piagetian Fifth Stage which, it is suggested, follows the level of Formal Operations (e.g. Arlin, 1975).

According to a colleague, recently returned from Canada, the Canada Council had seeded projects on the effects of ageing about two years ago, but few publications have surfaced as yet. A lot of the work is on the old-old group, the over 60's, because of their accessibility to researchers, rather than the middle-age groups who are difficult to find in any one location. The old saying that psychology is based on rats and college students may have to be amended to add "and old-age pensioners"!

3. THE MOST PROFITABLE RESEARCH THRUST: A Suggestion

The paucity of studies on adult learning would make almost *any* research thrust directed at adult learning profitable. Certainly we need to know more about all of the basic variables mentioned in section 2.3 of this paper, but my personal preference lies with the approach of Entwistle, Hanley and Hounsell (1979, p.377) when they said:

> "It is in the possible interactions between students' approaches to learning, lecturers' styles of teaching and disciplinary distinctiveness that the future of research lies - and the possibilities of important implications for teaching and learning in higher education."

I am also taken with the notion of Entwistle and Wilson (1977, p.157) that:

> "In education there has been a shift away from objective and static measurement - what Parlett and Hamilton (1972) have called the agricultural-botany paradigm - towards approaches associated with social anthropology, for example, depth interviews and various forms of observation."

I want to introduce you to "Hore's RIG" (Research Idea Generator) for adult learning, some parts of which are best studied using psychometric techniques and some using the methods of social anthropology. The RIG is embryonic, and can be criticized on that ground, also it does not adequately represent the combinations and permutations of interactions between the various parts of the model (see Fig. 1).

The figure implies relative weightings to the areas of possible study and some researchers may wish to follow a "pure" line, but the significant findings will come, I feel, from the cross-area studies, for example, memory and anxiety or cognitive style and fear of failure.

This article is based on a paper given previously to a small invited seminar on the mature age student held at Monash University in October, 1980, sponsored by the E.R.D.C.

I am indebted to Derek Whitelock (Univ. of Adelaide) for suggesting that "andragogy" should be "anthropogogy" to avoid any sexist connotations. The ERIC search was organized by Ms Arleda Watson, from Leeward College, University of Hawaii, who was on study leave in HEARU. I am much indebted for this assistance.

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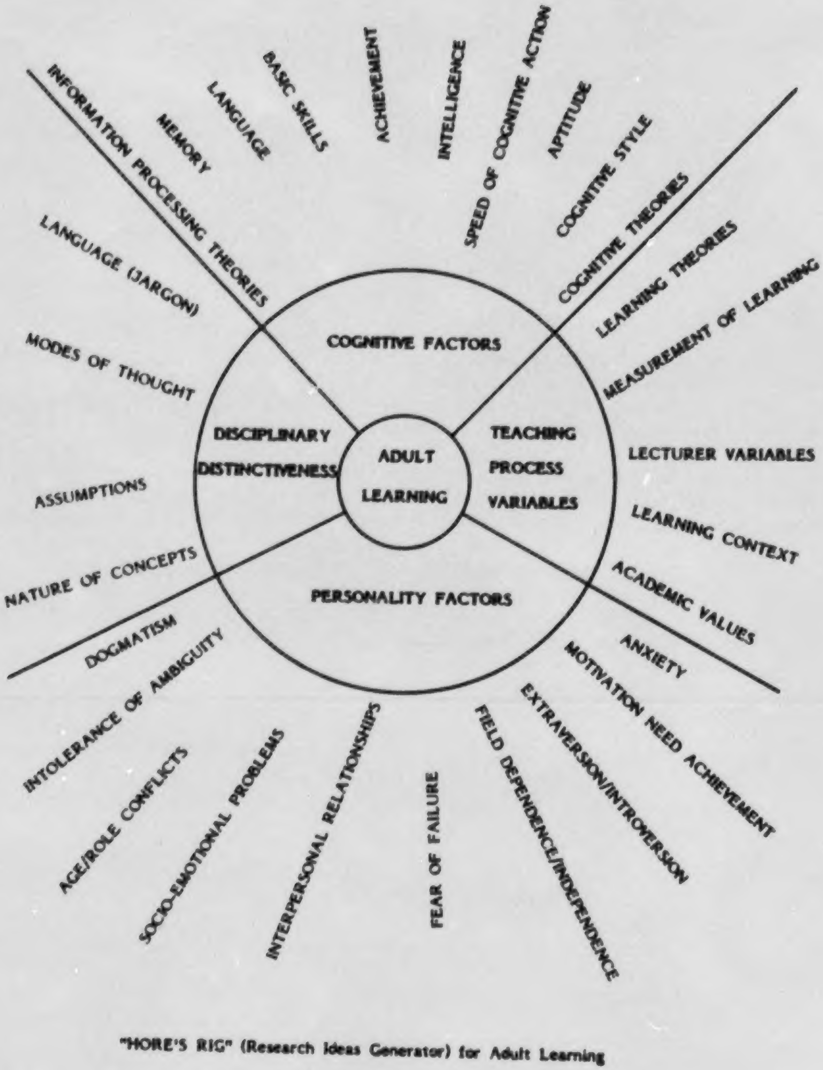
Table 1. Differences in Results from Cross-sectional and Longitudinal Studies on the Effects of Age on Learning Ability, Problem Solving and Critical Thinking.

TOPIC	CROSS-SECTIONAL	LONGITUDINAL
Learning Ability	GRADUAL DECLINE with age.	STABLE, with increases for the most able,
Problem Solving	DECLINE with age	STABLE until after age 70.
Critical Thinking	SMALL DECLINE	SIGNIFICANT INCREASES

Table 2. Stability of Causal Attributions as a Mediator in Changing Expectations of Success.

Initial Expectancy	Performance	Causal Attribution	New Expectancy
HIGH	HIGH →	"ABILITY" → STABLE	VERY HIGH
	LOW →	"BAD LUCK" "LACK OF EFFORT" → UNSTABLE	HIGH
LOW	HIGH →	"GOOD LUCK" "SPECIAL EFFORT" → UNSTABLE	LOW
	LOW →	"LACK OF ABILITY" → STABLE	VERY LOW


ADULT LEARNING
COGNITIVE FACTORS
TEACHING PROCESS VARIABLES
PERSONALITY FACTORS
DISCIPLINARY DISTINCTIVENESS
INFORMATION PROCESSING THEORIES
MEMORY
LANGUAGE
BASIC SKILLS
ACHIEVEMENT
INTELLIGENCE
SPEED OF COGNITIVE ACTION
APTITUDE
COGNITIVE STYLE
COGNITIVE THEORIES
LEARNING THEORIES
MEASUREMENT OF LEARNING
LECTURER VARIABLES
LEARNING CONTEXT
ACADEMIC VALUES
ANXIETY
MOTIVATION NEED ACHIEVEMENT
EXTRAVERSION/INTROVERSION
FIELD DEPENDENCE/INDEPENDENCE
FEAR OF FAILURE
INTERPERSONAL RELATIONSHIPS
SOCIO-EMOTIONAL PROBLEMS
AGE/ROLE CONFLICTS
INTOLERANCE OF AMBIGUITY
DOGMATISM
NATURE OF CONCEPTS
ASSUMPTIONS
MODES OF THOUGHT
LANGUAGE (JARGON)

"HORE'S RIG" (Research Ideas Generator) for Adult Learning

SPECIAL ENTRY STUDENTS IN TERTIARY EDUCATION

ROSEMARY OSMAN,
TERTIARY EDUCATION AUTHORITY OF SOUTH AUSTRALIA

INTRODUCTION

This survey arose out of a general request from the Tertiary Education Authority of South Australia Advisory Committee on Post-Secondary Education of Women and Girls to provide information on opportunities available to women who wish to undertake vocational training in order to enter or re-enter the workforce. In particular the Committee was concerned about women who did not have the normal academic prerequisites for admission to tertiary education. This concern is, of course, not wholly confined to women, and in the event it was decided to examine in more general terms the opportunities available to both men and women to gain access through special entry schemes to tertiary institutions.

The existence of special entry schemes is by no means new in Australia, and indeed there are significant precedents dating back to the immediate post-war years when special arrangements were made to encourage returned servicemen to undertake tertiary studies. But in all the time that such schemes have been operating there has been very little research conducted on the effectiveness of these schemes in expanding access to tertiary education among groups who would otherwise be poorly represented, and on the success of the students thus enrolled, as well as their reasons for enrolling, the problems they perceive and their expectations both upon entering and leaving their particular courses of study.

The present survey does not attempt to answer all of these questions - nor any others in a definitive way. Rather it attempts to provide an empirical profile of present applicants to and participants in special entry schemes which is intended to serve as a basis for subsequent, more specific research studies on questions of access to minority and educationally disadvantaged groups, on problems of adapting educational institutions to a different and more diverse student clientele, and on issues of relative academic standards, motivation and so on.

The main characteristics of the special entry schemes as they presently exist in each of the SA tertiary institutions are outlined in Table 1. The majority of the institutions conduct their own special tests, some consisting simply of an essay. The majority of institutions also conduct interviews during the selection procedure.

Five basic questions were asked about the participants in special entry schemes at tertiary institutions:

1. Who are the current participants in the special entry schemes? Do they share any common background characteristics? To what extent are 'educationally disadvantaged' groups (eg women, older people, migrants, people whose first language is not English, early school leavers, people without occupational qualifications, and people who are not employed) participating in these schemes?
2. Are there any differences in background characteristics or participation patterns between special entrants at universities and those at colleges of advanced education?
3. What are the major reasons motivating people to apply for special entry to a tertiary institition?
4. What are the major problems that special entrants experience as mature age students, and how important are these problems?
5. What is the potential clientele for special entry schemes and how can it be defined? Are there any barriers presently preventing people from participating in the schemes?

METHODOLOGY

The study involved surveys of two separate groups involved in special entry schemes at tertiary institutions in South Australia.

1. Current participants who had commenced their studies in 1980; and
2. People applying in 1980 through special entry schemes for admission in 1981.

The second group was intended to investigate the demand for special entry and the possible differences in the background characteristics between the total pool of applicants and those who were accepted.

The sample of entrants consisted of 77 students (50% of the special entrants) enrolled at universities and 308 students (86% of the special entrants) enrolled in colleges of advanced education. Certain background characteristics for the respondent samples and population were compared and there was no reason to suggest that the profiles of the respondents in either sample were substantially different from those of the respective population (see Osman, 1981)

Because of the potentially large number of applications and the possibility of multiple applications from each applicant to different institutions, a sample was taken for this survey, including applicants to one institution from each higher education sector. The University of Adelaide and Adelaide College of the Arts & Education were chosen because of their size and central locations. In all, 376 questionnaires were distributed and 282 replies received (75% of all the applicants to these institutions.

Where differences were found between applicants to the University and the College, generalisations should be made with caution because these differences could have been due either to a difference in the type of institutions (University or College) or to the presence of courses which were highly attractive but had restrictive quotas (for example, Law at the University of Adelaide).

1. CURRENT PARTICIPANTS IN SPECIAL ENTRY SCHEMES

In terms of the background characteristics of sex, marital status and age there appeared to be four main groups of participants. Firstly, there were the "currently single" people aged 25 years or less, representing 19% of the total entrants in the sample. Secondly, there were males not currently single and aged over 25 years, representing 21% of the total entrants. Thirdly, females who were not currently single and were over 25 years of age represented another 32% of the sample. And fourthly, currently single females over the age of 25 years comprised a further 16% of the special entrant sample.

In all, 53% of entrants to special entry schemes at universities and 61% of entrants to colleges of advanced education were women. The majority of entrants were aged 35 years or less; approximately 25% of entrants were 25 years or less, 28% were aged between 26 and 30 years, 20% between 31 and 35 years, and the remaining 27% were over 35 years of age. Of all entrants, approximately 41% were currently single (ie never married, divorced, separated or widowed) and the other 59% were currently not single (ie married or in de facto relationships).

Country of Birth

Of the total group of entrants, 65% were born in Australia, 22% in the UK and the remaining 12% in other countries. This means that 35% of the sample of respondents must at sometime have migrated to Australia and so might have experienced some disruption to the continuity of their education. These proportions reflect a similar distribution to that of the "country of birth" for the entire Adelaide metropolitan population (Australian Bureau of Statistics, 1976 Census). Only 9% of the entrants, however, did not have English as their first language.

Schooling and the representation of Early School Leavers

For the majority of entrants the special entry scheme provided a first chance at tertiary education: 83% of the respondents had not completed 12 years of schooling. Male entrants were more likely to have completed a higher level of schooling than female entrants; 41% of female entrants had left school by the end of Year 10, compared with 28% of male entrants. The personal circumstances which influenced entrants in their decision to leave school included economic hardship for a significant proportion (40%). However, other personal factors seem to have been more influential overall. For the girls, family pressure combined with the attitude that education was unnecessary for girls' careers appeared to have been influential. For the boys, their own lack of interest in further study at the time they left school and a desire for independence seem to have been most influential. Both males and females seem to have shown a lack of awareness at the time they left school of the importance of education for their future careers.

Post-School Education

Over half of the entrants had attended courses run by the Department of Further Education since leaving school. In particular, 39% of male entrants and 33% of the female entrants had attended adult Matriculation courses or night school classes.

Occupational Qualifications

Of the 419 special entrants in the sample, 44% had some type of occupational qualification, although the majority did not have any. There were differences in the proportion of male and female entrants with occupational qualifications and the areas in which these qualifications were held: 55% of male entrants had some type of qualification, compared with only 36% of female entrants. The majority of qualifications held by male entrants were in the trade and technical areas (62%), whereas only 12% of female entrants who had any sort of qualifications were qualified in these areas. Of the 92 female entrants with qualifications 46% had either nursing or teaching qualifications, compared with only 5% of the male entrants holding some sort of qualification.

Employment History and Source of Financial Support for Special Entry Students

Of the respondents in the survey of applicants to special entry schemes, 60% were in full-time employment, 13% in part-time employment and 28% were not employed at the time of applying for admission through a special entry scheme. Thus 40% of the applicants were currently not employed on a full-time basis. Of those currently employed 36% were employed in professional or managerial occupations, 48% in clerical occupations and only 15% in manual occupations. A small but significant proportion of applicants to special entry schemes (15%) were people who had been involved in home duties for the majority of time since leaving school. Another 2% of the applicants had been unemployed for the majority of time since leaving school.

Of the respondents to the survey of special entrants in tertiary institutions, 40% were currently employed full-time, 18% were employed part-time and 42% were not employed. It appears that some entrants gave up their employment when they became students, and others took part-time work in unskilled manual areas. The survey data also suggests that the people in professional and managerial occupations remained in those positions whilst studying. However, those whose usual occupations were in the clerical areas were either not remaining in those positions whilst studying or they were people who had been out of the workforce.

The majority (68%) of male entrants who were not single were supported by their own salaries. By comparison 41% of the single male entrants were supported by government assistance for students and 46% by their own salaries. Of the female entrants with partners 62% were financed by their partners compared with only 8% of the male entrants with partners. Almost one-third of the single female entrants were supported by government pensions and almost another third by student assistance, the remainder by their own salaries.

Course Preferences and Attendance Patterns

The distribution of special entrants across different courses was influenced by the presence of quotas, especially in the economics and law faculties at the University of Adelaide. The majority of entrants at the universities were enrolled in arts courses. At the colleges, 43% of the special entrants were enrolled in teacher training courses and another 42% in other vocational courses such as communication studies, agriculture, recreation, wildlife and park management, social work and accountancy.

Approximately equal proportions of male and female special entrants were enrolled in arts and law. Although the numbers were small there was a higher proportion of male than female special entrants in economics and science courses. The major differences occurred in the other vocational courses where 32% of female special entrants were in teacher training (18% of male special entrants) and 27% in other predominantly vocational courses (41% of male special entrants).

Approximately equal proportions of male and female special entrants were enrolled on a full-time basis (41% and 45% respectively). However, single entrants were more likely to enrol full-time than those not single (54% and 36% respectively). These figures suggest that other occupational, social, financial and home commitments were influential in deciding whether an entrant enrolled on a full-time or part-time basis.

Entrants With Children

Of the 419 entrants in the survey 42% had at least one child, financially dependent on them; 55% had at least one child living at home; 10% had children less than 3 years old and 18% had children between the ages of 3 and 5 years. It appears that entrants were not necessarily waiting until their children were of school age before applying for special entry to a tertiary institution. Of the 107 currently single female entrants, 33% had at least one child financially dependent on them and living at home, and 5% had children less than 3 years old. The majority of entrants with partners had children living at home. Of the 65 single male entrants, 11% had at least one child living at home, indicating the existence of single fathers in the sample of entrants as well as single mothers.

2. DIFFERENCES IN BACKGROUND AND PARTICIPATION PATTERNS OF SPECIAL ENTRANTS AT UNIVERSITIES AND COLLEGES OF ADVANCED EDUCATION

Approximately equal numbers of males and females gained entry to universities through special entry schemes, however more females than males gained entry to colleges of advanced education through these schemes (61% of the special entrants at colleges were females).

Entrants to universities were more likely to have completed 12 years of schooling than their counterparts at colleges of advanced education (28% and 15% respectively). In addition, 54% of the entrants to universities had attended adult matriculation courses or night school since leaving school, compared with only 31% of entrants to colleges of advanced education. This is especially surprising given the emphasis placed on adult matriculation studies by some colleges in their selection procedures.

In the survey of applicants to the University of Adelaide the majority were in full-time employment, whereas the majority of applicants to Adelaide College were either in part-time employment or not employed. Of the applicants to the University presently employed, 36% were in professional or managerial occupations, 48% in clerical occupations and only 15% in manual occupations. Of the applicants to Adelaide College who were employed only 16% were in professional or managerial occupations 35% in clerical occupations and 48% in manual occupations. Thus the University and the College appeared to attract a rather different clientele in terms of employment status and occupational level. The majority of applicants to the University were employed full-time in white collar occupations, whereas the majority of applicants to the College did not have full-time jobs, and those who did have jobs were employed in either clerical or manual occupations.

The distribution of special entry students in courses at each type of institution was influenced both by the courses offered and by the presence of quotas. The majority of entrants at universities were enrolled in arts courses whereas entrants at colleges of advanced education were enrolled in teacher training or other courses of a vocational nature. At the colleges there were approximately equal proportions of full-time and part-time special entrants, however, the majority of entrants at universities were studying part-time.

3. REASONS FOR ENROLLING IN SPECIAL ENTRY SCHEMES

The most important reasons indicated by entrants for applying for entry to a tertiary institution were "for personal enrichment" and to allow them "to change from (their) current situation". The male entrants also tended to be dissatisfied with their current work situation and wanted to develop personal characteristics to help them enter new areas. The female entrants wanted to develop new interests and also to develop personal characteristics to help them enter new areas.

The training aspects of tertiary education appeared to be an important motivation, especially for female entrants. In addition, 53% of the male entrants rated "to improve prospects of promotion in present work" as an important reason in their decision to enrol compared with only 28% of female entrants. These figures are in keeping with the relative proportion of male and female entrants who are currently employed.

4. PROBLEMS ASSOCIATED IN BEING A "SPECIAL ENTRY" STUDENT

The problems experienced by mature age special entrants appeared to fall into three main categories:

1. problems resulting from lack of time to allocate to completing responsibilities;
2. problems related to a lack of knowledge about the required standard of work; and
3. financial problems.

Problems related to entrants not knowing the standard of work required could be more serious among special entrants than among other mature age students because of the special entrants' lack of previous successful experience in academic pursuits, for example Matriculation studies. Problems related to limitation of time could be reduced by special entrants choosing to study full-time, but then they would be likely to face potential financial problems.

There are obviously some steps which institutions could take to help minimise some of the problems experienced by special entrants both in relation to their academic studies and in the realm of counselling; and other policies which government could take concerning financial assistance for child care and incidental expenses. Most of these have already been discussed above. It does not appear from the survey data that special entrants were being counselled about such problems as time allocation techniques at the beginning of their courses, but it appears that these students only turned to counsellors when a crisis situation occurred. Given the extent of problems related to time that special entrants seem to have experienced, this is an important area where further action is required.

5. NATURE AND SIZE OF POTENTIAL CLIENTELE FOR SPECIAL ENTRY SCHEMES IN SOUTH AUSTRALIAN TERTIARY INSTITUTIONS

In discussing the potential clientele for special entry schemes, attention must first be given to the current demand for these schemes - in particular to the question of whether the current pool of applicants is different in any major respects from the group of entrants. Of the applicants to the University of Adelaide included in the present survey, 59% were male, compared with 47% of entrants. However a higher proportion of female than male applicants were accepted for admission (35% of male applicants compared with 42% of female applicants).

Of the applicants who responded to the survey only 19% were over 35 years old. Nearly all these older applicants had applied to the University of Adelaide, only 5 having submitted an application to Adelaide College of the Arts and Education. Of the applicants in this age group who had applied to the University, over half (56%) were successful in their applications, the highest acceptance for any of the age groups (38% acceptance for University applicants).

There was a significant difference in the highest level of schooling completed by applicants and entrants to the colleges of advanced education; 15% of the entrants had completed 12 years of school compared with 32% of the applicants, although the latter group included only one of the colleges.

In other respects the groups of applicants and entrants were similar.

It seems from the analysis of background characteristics of special entrants who enrolled for the first time in 1980 at tertiary institutions in South Australia that there were four major groups in the community who might have derived some benefit from these schemes:

1. currently single people aged 25 years or under;
2. males currently not single and over the age of 25 years;
3. females currently not single and over the age of 25 years; and
4. females currently single and over the age of 25 years.

The majority of those in the last three groups were under the age of 45 years. Other potential entrants could be classified as either (5) 25 years or under and not currently single, and (6) males currently single and over the age of 25 years.

The potential clientele for these schemes was estimated by looking at the numbers of people in the Adelaide metropolitan area who conformed to the relevant categories of marital status and age, and adjusting these figures to take into account the proportion who would have been early school leavers (see Table 2.)

An analysis of these figures clearly shows that the sample of special entrants was disproportionately representative of particular groups - Groups 1 and 4 were larger than expected, Groups 2 and 5 were under-represented, and Groups 3 and 6 were represented approximately in proportion to their numbers in the Adelaide metropolitan area.

It has sometimes been suggested that special entry schemes tend especially to attract bored housewives. Group 3 could possibly be interpreted in this way, although it is important to note that this group was represented in special entry schemes in proportion to the numbers of women in this category in the whole of the metropolitan area.

Assuming that the respondent sample of entrants was not unlike the overall group of participants in special entry schemes, it would appear that the schemes tended more to attract:

(a) those currently single and aged 25 years or under; and
(b) females, currently single, over 25 years (but under 45 years),

as well as

(c) females, not currently single, over the age of 25 years (but under 45 years); and
(d) males, currently single, over 25 years (but under 45 years).

Extrapolating from these figures it seems that in a single year special entry schemes accept less than 0.2% of the potential clientele, assuming that such schemes are equally attractive to all other members of the corresponding groups in the population not already participating in them. This leads to the important question of why the demand for admission to tertiary institutions through special entry schemes is not greater. There are several possible explanations for this; the first is that the vast majority of people in the relevant categories are unaware of the existence of special entry schemes; the second is that their needs and motivations are different from those of the present participants or those catered for by tertiary institutions; and the third is that although they may be aware of the existence of such schemes, and perhaps are even motivated to apply, they cannot afford the time or cost involved in doing so.

The first explanation suggests that the current forms of publicity (mainly newspaper advertisements) used by tertiary institutions may not be reaching all the groups of people who could potentially benefit from special entry schemes and that a different approach to publicity might be warranted, although this would require further investigation.

The third explanation could apply to, for example, single women with dependent children who are supported on government pensions, who are unable to find suitable child care services which they can afford.

Many groups who are motivated to study at tertiary institutions may not be able to afford to do so, and those potentially hardest hit could be the people on low incomes and with dependent children.

6. CONCLUDING COMMENTS

It is clear from the results of this survey that special entry schemes in South Australia are indeed helping to equalise access to higher education for some of those who were prevented by personal circumstances from enrolling earlier. However it is not clear how many more people in the community could find real value in gaining admission to tertiary institutions through such schemes and, given some knowledge about them and the necessary financial support, would be prepared to participate. Certainly the potential clientele, at least in terms of corresponding age groups throughout the metropolitan population, is much larger than the group of students currently enrolled.

References

Osman R, Special Entry Schemes in Universities & Colleges of Advanced Education in South Australia : A survey of Applicants & Entrants Tertiary Education Authority of South Australia, Adelaide, May 1981.

Table 1: Outline of selection procedures for special entry schemes at South Australian tertiary institutions

Basis of Selection	Colleges of Advanced Education						Universities	
	Adelaide	Hartley	Salisbury	Sturt	S.A. Institute of Technology	Roseworthy	Adelaide	Flinders
Special test	✓	✓	✓	✓			✓	✓
Interview	✓		✓	✓			✓	✓
Recent academic experience e.g. matriculation subjects		✓	✓*	✓				
Relevant work experience+				✓				
Other Information++					✓			
Not specified+++						✓		

* either a special test + interview or recent academic experience

+ work experience broadly related to the course for which the student is applying

++ for example, evidence that the applicant is likely to succeed in tertiary studies

+++ no details of selection procedures specified

Table 2: Numbers of special entrants and 'adjusted numbers of early school leavers in the Adelaide Metropolitan Area, by defined group

Group	No. of special entrants	% of all special entrants	'Adjusted' number of early school leavers	% of all early school leavers
1. currently single 25 years or under	78	19	29520	13
2. males, not single, over 25 years	86	21	73507	31
3. females, not single, over 25 years	134	32	80729	34
4. females, single over 25 years	66	16	15896	7
5. not single, 25 years or under	27	6	355576	15
6. males, single, over 25 years	28	7	22035	9
total	419		235228	

346

MATURE AGE STUDENTS IN TERTIARY COURSES

LESLEY GREAGG,
FOUNDATION STUDIES,
CAULFIELD INSTITUTE OF TECHNOLOGY

Would-be mature age students who apply for admission to courses in Universities and C.A.E.s through their Special Entry Schemes require considerable amounts of self knowledge, self confidence and courage. The courage is needed because not all applicants for admission through these schemes are successful and the applicant thus runs the risk of rejection if s/he is not successful, and of venturing into a new and unknown envrionment is s/he is.

Self confidence:

Unfortunately, not all school-leavers either now nor in the past left school with that sort of self-knowledge, and self-confidence. The rise of retention rates in secondary school and the resultant credentials inflation has left many who at the time they left school felt themselves able and confident, but are now feeling uncertain of their ability to successfully complete a year 12 course, let alone a post-secondary one. These people generally consider themselves neither eligible nor able enough for admission through special entry schemes. They perceive higher education to require more ability than they feel they have.

Even more unfortunately, many more would-be mature age students left school with their self-confidence so dashed by their schooling that they need great encouragement, support and assistance before they can even think of returning to study. Special Entry Admission schemes are not generally sought by this type of student. T.A.F.E. Access Programmes provide a more suitable entry route for them. In this context T.A.F.E. Year 12 H.S.C. and T.O.P. courses must be seen as access programmes.

Mature Age Entry:

Of the 401 mature age students covered in Hore and West's 1977 Monash University survey, the majority, 196 or 8.8%, had gained entry through a matriculation gained by returning to study as either a full-time or part-time year 12 student. Only 33 or 8.2% had entered through that University's Special Entry Leaver's Entry Scheme. The remainder of those surveyed had matriculated before leaving school but had deferred entry to their current university course.

The most popular means of gaining this qualification for those who have been away from school for some time are either in an evening course at a high school, an adult education run course or in a day or evening H.S.C. or T.O.P. (Tertiary Orientation Programme) course at a T.A.F.E. college.

Year 12 Courses:

Though I have taught a widowed mother with three children who returned to study by enrolling in her local high school, donning the school uniform, obeying the school rules and attending from 9 a.m. to 3.30 p.m. daily, most adults who wish to gain a matriculation by study in the daytime, either as full or part-time or day-release students, choose the more informal, less regimented, atmosphere of an adult-education H.S.C. class or a T.A.F.E. T.O.P. course at a T.A.F.E. college.

The T.A.F.E. Tertiary Orientation Programmes are designed to familiarize students with tertiary patterns of teaching and learning. Many in Victoron operate in multi-level institutions and thus share the same campus facilities, buildings, student-unions, health care, counselling and child care services. A factor most attractive to returning to study students is the absence of external examinations and an assessment dependent upon an end of year examination as occurs in H.S.C. examinations. T.O.P. programmes run school-based courses, offering subjects such as Psychology, Sociology, Media Studies, Women's Studies, Human Rights, etc., as well as more conventional subjects such as Accountancy, Australian History, Art, Pure Mathematics, Physics, Chemistry, Biology and Environmental Sciences, and so on.

Many would-be mature age post-secondary students choose to do a Year 12 course as a refresher course (if they had matriculated in the past) or as a test of their intellectual and organizing ability (if they had not). BXt still there are many too beset by doubts and fears and ignorant of their own abilities to contemplate a formal Year 12 course and for whom an Access course is more appropriate and helpful.

Self-Doubts:

Many men and women of suitable ability in the community do not even perceive themselves able enough, organized enough, nor confident enough to enrol in a Year 12 course. Their past educational experience has been of unhappiness, failure and disappointment. Many, especially women, left school early, before what they perceived as the really hard years of study began, and so feel hesitant about returning to study, much as they would like to.

Their doubts largely centre around questions such as "Am I clever enough?" "Will I fit in?" "Will the young students laugh at me?" "What will my friends say?" and "Can I manage?". They feel uneasy because they expect the teacher would be the same age, or younger than they, and they are accustomed to being much younger than the teacher and in awe of them; or else their memory is that they 'couldn't get on' with their teachers in the past and feel even more awkward at the prospect now they are older.

And overwhelmingly present for nearly all who contemplate returnint to study, is the fear of examination failure. Indeed, many courses and subjects are chosen because of the absence or infrequency of examinations. Hence the attractiveness of T.A.F.E. T.O.P. programmes.

Access Courses:

Access courses have no pre-requisites and therefore are open to all. They are informally organized, short in duration, non-credit in nature and have no assessment. They can thus offer a wide variety both in content and venue, e.g. the institute at which I teach has offered access programmes in on-the-job situations in a brewery and in a retail store, as well as to the mothers attending a Retarded Children's Kindergarten during kindergarten hours. Courses offered can be such as English as a second language, Adult Literacy and Numeracy, study skills, confidence-raising programmes, special interest groups, or community education type activities such as Book and Film Discussion Groups and Elementary Indonesian.

In spite of the more relaxed, non-credit nature of Access Programmes, for many men and women who feel they would like to return to study, to enrol, or even to enquire about enrolment in an access course, can be a momentour experience fraught with threat and anxiety. And yet these courses can be most valuable for those wistful but hesitant about returning to study.

Listen to two of the participants in the first Whitehorse Technical College Women's Programmes"

"I had little confidence as a child and lost more over the years." (late 30's)

"I was surprised they rang back to admit me in the course, because I thought I was too old." (early 40's)

Access Courses as Information Givers:

Together with confidence building and teaching study skills, many Access Programmes do valuable work in making available information about opportunities in post-secondary education. For in spite of much advertising, and public relations work by universities and colleges of advanced education, ignorance and lack of information are major barriers in access to higher education. There is still a lack of availability of information to prospective mature age students. Many are unaware of mature age entry procedures both in nearby post-secondary institutions and in those that could be accessible to them as either internal or external students.

As well as being ignorant of the opportunities currently available to the, many in the community are also unaware of their own intellectual capacity. Many assume that post-secondary study demands a level of intelligence that they do not possess. Access courses designed to enlighten people about their abilities and encourage them to seek further study while providing information about opportunities, can markedly increase the numbers of mature age applications for places in higher education.

Women's Programmes:

In the days when it was unheard of for wives, let alone wives and mothers, to re-enter the work-force, except when driven by hard economic necessity, it was uncommon for women to complete a matriculation qualification. This has now changed and many mothers have had their own educational ambitions developed by observing their daughters tackle upper secondary and tertiary study.

Some institutions now offer special Year 12 courses for women with child care available and a timetable suitable for the conscientious mother of school-age children who wishes to be at home when her children return from school.

There are also a growing number of speical informal access programmes for women which focus on women's special needs and problems and offer support as well as information and subject content.

Learning Centres and Women's Co-operatives have thriving centres offering their own special courses as well as Year 12 subjects. Also, many T.A.F.E. Colleges have responded to women's needs and offer Women's Access Programmes for those who feel they need an intermedicate place before making the decision to enrol in a matriculation subject or subjects.

Research on Women's Programmes:

Though I have taught and listened to many men who experienced self-doubts and anxieties on returning to study, or the thought of returning to study, and while many access programmes are suitable for men, my own research experience in access programmes has been on women's programmes: the first on the first such Victorian programme at Whitehorse Technical College, Box Hill, and the second in the School of Orientation Studies, as it was then known, at Caulfield Institute of Technology, Caulfield, Victoria.

The Whitehorse Technical College Women's Programmes:

In 1977 the first three pilot Women's Access Programmes were run at Whitehorse Technical College by Anita McCallum. These were the first such programmes in Victoria, and a full account is given in Noise of Dreams, published by T.A.F.E. Services and written by Anita McCallum and Don McKenzie.

Briefly, the initial programme consisted of one-third life-planning skills and assertiveness training, and two-thirds speakers offering information from the Commonwealth Employment Service, the Working Women's Centre, Whitehorse Technical College, the Council of Adult Education, and the Citizens' Advice Bureau. After the first programme, it became apparent that information by itself was of little use to those who were unaware of their needs and unable to decide what they most wanted for themselves. Therefore, the proportion of time devoted to life-planning skills, confidence building and assertiveness-training was increased.

There were 47 participants in the first three programmes, and twelve months later I was able to reach 42 by telephone.

Employement Experience:

When they had joined their programme, only 10 of the women were in employment (full or part-time). For the other 37, the period since they were last in paid work varied from 1 year to 30 years. One-third of them had been out of the workforce for 15 or more years, and 8 for 20 or more years. In spite of these figures, two-thirds of the women were between 35 and 44, so they still had a lot of active life left to them.

Educational Experience:

Considering the attitudes towards schooling for girls current when the women were at school, it is of interest that 16 (38%) left school at 15 years of age and the same number were educated beyond that age.

When asked whether they left school willingly or not, 40% said 'no' and of the remainder many did so because they felt school had little to offer them and 6% even offered that they hated school and so were very happy to leave.

These are attitudes and emotions that have to be overcome by those offering returning to study programmes and courses of study for mature age students.

Ambitions:

In spite of these unhappy educational experiences, the most common aim of participants in these programmes was for further study.

The following tables will illustrate this point:

Participants were asked what had they done in the year since attending the Whitehorse Women's Programme and what they hoped to do next.

TABLE I
AMBITIONS OF PARTICIPANTS IN WHITEHORSE PROGRAMMES

Whitehorse Follow-up 1978	What they had done	Hoped to do
Gain employment	45%	30%
Study	78.5%	71%
Pre-tertiary study		21%
Tertiary Study		4.7%

Derived from Greagg: The Whitehorse Women a Year Later, pp. 5-6.

C.I.T. Survey:

As a comparison, note the figures from the C.I.T. 1979 survey. This was not a follow-up study, but a mail survey of participants attending C.I.T. women's programmes during that year. There were 48 respondents. When asked what they hoped to do when their current women's programme finished, they gave the following responses:

TABLE II

C.I.T. WOMEN'S PROGRAMME SURVEY RESPONDENTS'S GENERAL AMBITIONS

C.I.T. 1979	General Ambitions
Employment	23%
Another Access Programme	45%
To Study More	29%
To Matriculate	13%

From Greag: Women's Programmes Begin at C.I.T. (forthcoming), pp. 50-51.

It would seem wise for the educational system as a whole to support these programmes and their partipants both for the good of the participants themselves, in supplying them with long-denied opportunities and the good of the system as a whole, in supplying further mature-age students.

Conclusion:

It is only a very small percentage of would-be mature age students who are aware, confident and courageous enough to offer as applicants for special entry schemes in higher education. There is though a defined path for the able but unconfident, through T.A.F.E. access programmes, notably those expressly for women, to mature age Year 12 matriculation and thus to tertiary study.

Though this path exists it needs more support so that many more institutions make available such opportunities. Both the participants and the institutions stand to be enriched by the widening of such access opportunities.

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EXIT INTERVIEWS - TALKING TO THOSE WHO LEAVE

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This paper is concerned with new directions for research and policy in the area of attrition. For much of the research to date has focused exclusively on the student. It was the student who failed or didn't like what was offered by the institution, so researchers set about to discover what it was that predetermined these responses. This was usually with one of two possible strategies in mind:

- excluding the undesirables and bad risks,
- providing extra help through study skills, or counselling (which was to show the human face of the institution).

The result is a vast body of research which shows conclusively that there is no conclusive answer to this problem of predetermining characteristics. To quote the results of just two recent studies:

> We anticipated the creation of rather more precise models of student achievement out of our psychometric approaches. Such precision proved impossible ... (Entwistle and Wilson, 1977);
>
> If one excludes low academic achievement, then there seems to be no accurate way of predicting voluntary withdrawal using personality measures (Bianchi and Bean, 1980).

As with any complex social interaction, there are just too many variables to accurately predict what will happen to whom with any degree of confidence.

That is not to ignore the valuable work that has been done. This has been mainly in the definition of groups and influences on groups -- that there are different types of attrition such as voluntary withdrawal in addition to failure, and that different types of students are influenced to varying degrees by such things as intrinsic rewards as opposed to the extrinsic reward system of the institution. Rather than provide a summarised literature review here, a comprehensive coverage can be obtained from

Chapter Three of Entwistle and Wilson, the article by Tinto, the AVCC report by Eaton, and the accompanying paper in this section by Malley.

Accepting that research to date has exhausted the main value on this route, it seems that there are two directions in which to pursue research: one concentrating on institutional factors (which have been largely ignored to date), and the other investigating more relevant aspects of the student.

Institutional Aspects

Such a line of investigation would involve subjecting the academic, social, and bureaucratic environments of an institution to the types of scrutiny students have undergone. It is all too easy to think of the institution as a constant, and not divided into the following aspects that students confront:

academic -	lecturing styles and attitudes of staff to students, preferred styles of learning in discipline areas;
social -	the social fabric of the community including the departmental ethos, peer group relations, social and club activities on campus;
administrative -	flexibility of bureaucratic channels, library hours and borrowing arrangements, timetabling of lectures, child-minding facilities.

Student Aspects

The other approach is to continue to pursue the student relentlessly down departmental corridors and the corridors of the mind, but by looking more closely at what the student experiences. Obviously what the student brings to the institution in terms of established characteristics, predispositions, and preconceptions needs to be considered, but that is not an end to the matter. We need to understand more about the context in which these factors operate -- the institutional connection. This means that staff-student attitudes and preferred styles of learning for example must be seen in relation to student characteristics of established learning styles and habits.

Here the European research on learning styles seems to be apt. The work of Ference Marton and his colleagues at Goteborg University in Sweden on qualitative differences in learning, and of Noel Entwistle and Dia Hounsell and colleagues at Lancaster University on learning styles, present an enlightened and refreshingly common sense approach to what students do when they learn or try to learn, and what they produce.

An interesting example of how this research comes together is seen in an article by Paul Ramsden (1979) titled "Student learning and perceptions of the academic environment". In this study of students' perceptions of the academic environment it is revealed that students in different subject areas see themselves to be studying in markedly different environments. It is also shown that their approach to learning is influenced by this perception of their academic world.

A natural component of this direction in our chase after students is a move in methodology to qualitative or illuminative research methods. This means we submit students to less paper-and-pencil psychometric studies, and actually approach the beast and talk to it, ask it questions about how it feels, what it does, what it thinks -- to ask and to listen. Multivariate factor analysis may be a far more precise instrument (likened to a surgeon's laser beam), but ultimately more may be revealed with the deft use of hand-held qualitative methods to reveal a total picture of the student, than the micro penetration of factor analysis that analysizes and cauterizes only a minute segment.

In summary, we can not account for all the factors and influences which determine whether students persist, fail, or voluntarily withdraw. And it is probably better that we can't, for if it were possible this information would surely be used to treat students only as statistics. It would be a godsend to administrators, who could select their way out of the problem using a narrow economic model of wastage. Such a model marks all effort by the institution which does not lead to a graduated student (preferably in minimum time) as wasted resources; and a problem to be solved through selection criteria.

The two directions for research, institution specific and student-experience specific, really intersect in a closer examination of students in relation to their environments. In this the environment becomes a legitimate variable, that could be hoped to be improved, and students are not isolated from the learning they engage in.

A Study of Drop Outs

It was with these concerns in mind that we at HEARU embarked on a study of students dropping out from first-year Arts at Monash University (a more detailed report of this study is available from HEARU). The study originated from discussions between HEARU, the Registrar's Office, and the Student Union. It was prompted by previous HEARU research in the area ("The Problems of Attrition" 1980), the Williams' Committee Report (Recommendations 5.54, 5.56, 5.57, 5.58), and the Interim Report of the joint AVCC-UC Working Party on Attrition.

The original discussions revolved around the lack of information about students who discontinue or drop out during the year: how many, who they are, why they leave, do they return or plan to? It was proposed that the University set up a programme of "exit interviews", initially in only the Arts Faculty. The interviews would serve the double purpose of

- gathering background data about the students, in a personal, discursive form,
- and showing the students the institution was at least interested in their course of action: (the human face of Monash).

This programme was envisaged as in no way revolutionary, but it was seen as valuable in that the University was interested in gathering general statistics about its students in which their experiences and perceptions would help classify groups, rather than strict personality measures and the like. In this way the outcome to be studied (the decision to withdraw) was seen as a result of the student's experience -- and would potentially include a very wide range of variables. This is in contrast to the traditional approach which tries to work forward and predict (or account for) withdrawal in terms of entering characteristics of the student which can be easily measured. The traditional approach really pays little attention to what happens to the student at university or college; the method involved in this study begins to do this.

HEARU was commissioned to undertake a pilot study to determine the feasibility and appropriateness of the exit interviews and the structure of such interviews. As students who left during the year were to be the target group for this study, two groups were identified; (1) those who discontinued formally with the Faculty, (2) and those who dropped out in the sense of leaving without notice to the University during the academic year.

The students were contacted and interviewed by telephone using only a semi-structured schedule. We have found this method successful in the past as a means of contacting students and gaining their co-operation. An interview as such offers the opportunity to pursue leads and to check information, and form opinions about the veracity of the information given by the respondent. We see such a method as far more detailed and valuable than open-ended questionnaires, and a reasonable compromise on face-to-face interviews which require so much more time (in recording and transcribing) and co-operation by respondents.

In both categories, discontinuers and drop outs, 10% of the population were interviewed. For discontinuers, this entailed interviewing 24 students. Significant features of the group were the over-representation of mature age students and part-timers, and that 50% of those who discontinued did so within the first three months of the academic year.

A precis of the results for this group shows that 80% discontinued for non-academic reasons: sickness, marital and family considerations, financial or travel, and employment. Nearly all of these students had not consulted anyone at Monash about their decision to discontinue because they considered they were forced into that course of action by circumstances, and so discussion was irrelevant.

Up to 60% of these students discontinuing had returned to study at a tertiary level the following year, and a further 20% hoped to eventually.

The drop outs were far smaller in number, 8 students representing the 10%. Here the pattern of experiences was very different -- two students had non-academic reasons for dropping out (sickness and personal problems) while the remaining 6 experienced difficulty or dissatisfaction with their studies.

What characterised all but one of these 8 drop outs was

- that they experienced difficulty from the beginning of the year;
- they showed a personal inability to confront their situation as it developed;
- most expressed feelings of dislocation in the transition to university life, and difficulty in settling into the academic community.

Only three students had no plans to return to study, with the remaining five generally unsure about their eligibility to continue at Monash or transfer.

At this stage it's worth singling out two students with academic problems. From the group of discontinuers there was only one student who fitted into the classic picture of the student who discontinues because failure was inevitable. The student concerned was a normal age student, male, full-time, and who had discontinued just before the final date for discontinuance. In his own words: "it was my own lack of interest, not the workload... I worked hard in HSC, then was employed all summer holidays and just wasn't ready to work at uni." This student had no specific criticism to make of Monash or his lecturers and tutors.

The second student was from the drop outs, and was very clearly a "successful voluntary withdrawal." The student was normal age, full-time, female, and had dropped out in third term. This student deliberately just dropped out, and so was recorded as failed, as a gesture of dismissal to the University. She had found it narrow and unfulfilling, and spoke of always being the only one prepared for tutorials; and that staff "always seemed that they were not doing what they really wanted to; they were not interested in students, especially first-year students -- all they were interested in was 'my book' or 'my research.'"

These two students stand at opposite ends of the academic outcasts, one because he didn't care enough and the other because she cared too much, hoped for too much. Their experience indicates the diversity of the students who fail for academic reasons and that even this group is not clear cut. Of all those leaving during the year, 30% had problems relating to their courses; either through their inability to cope, their lack of interest, or the presentation of course material and its content.

On the basis of this it is clear there is a problem, but it was equally clear that exit interviews were not the answer to the problem. Such interviews are irrelevant to the majority leaving, who leave because of outside pressures. That this group is the majority is of course highly significant to those who characterise attrition solely as "failure" and consequently as wastage.

For those with academic problems, exit interviews are either impractical -- as most simply stop coming and there seems no way to encourage them to participate -- or of no value -- because they come too late to help the students or alter their final impressions.

The major recommendations we proposed involved tutors emphasizing for their students the significance of the final date for discontinuance. This was to give the potential or inevitable "fails" a chance through discontinuing to continue at Monash or elsewhere later if they chose. The other practical recommendation was that tutors pay close attention to early absences, to stop the rot as it begins. Of course, this is to recommend what should arguably be a major tutorial concern already. It also does little for those who are finding the tutorial unchallenging. But early identification offers the greatest hope - to improve performance, increase interest, or save wasted time.

SUMMARY

The major purpose of this session has been to identify what we believe to be the key directions for research and to suggest the kind of projects most applicable. All this has been with a very keen eye to the economic winds, for there is too much to be lost by recommendations that do not produce the goods. Researchers must have a very clear idea of what they might hope to achieve through their results and recommendations, and be equally sure that the institution does not have an unrealistic impression that attrition rates are to be dramatically reduced. One ill-conceived or misunderstood programme could spell an end to further work in the area.

The major policy implications of this session involve the shift in emphasis to the institution and towards the quality of the student's experience. Basically this involves recognizing the potential validity of students' criticisms -- that they might have something to say about the "efficiency" of the institution. Certainly not every student has constructive criticism to offer, especially as the majority appear to leave for external reasons that do not reflect on their experience of the institution at all. Both research and administrative policy on attrition must recognize that not all attrition is wastage, and that much of it is a healthy process where people are either forced to fulfil higher priorities in their lives, or are rejecting what is offered to them by the institution in a life long process of achieving what is best for themselves. There is still a need for research in the area, but for it to be of most value it should be directed towards

- helping students learn more meaningfully, and
- improving the quality of the education they are offered, through improving the institution.

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SYMBIOSIS AND TENSION - DROPOUTS, FAILURES ACADEMICS AND ADMINISTRATORS

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I am presenting this paper as a discussion paper. In it I wish to argue that the so called problem of attrition of students from post secondary education institutions is a problem which in the main is seen as a problem by institutions and educational bureaucrats, and as such, imposes studies and solutions of the attrition phenomena which are mainly directed towards the student rather than the institution. Consequently the research literature up until recent times has not systematically explored the possible institutional effects on student attrition. A breakdown of the student given reasons for attrition, which could be presented to various elements within the educational institution, may suggest that of the apparent approximation of one third of students who, after admission, do not graduate perhaps less than ten per cent of them will be sufficiently affected by traditional interventionist procedures to proceed to graduate in near minimum time.

Students and educational institutions are in an obvious dependency situation however, there is emerging evidence to suggest that within institutions there may be tensions between elements of the institution towards particular types of students and that these tensions may affect the type of interaction that the student experiences with the institution. In some cases these experiences may precipitate dropout or failure type reactions. In the past, institutions have tended to avoid formal investigations into the nature of the interaction of institution with student, with the intent of identifying possible institutional causes of student unhappiness, this type of investigation though may identify causes of attrition which are more accessible to manipulate than the great array of student characteristics which, in the past, they have tried to cope with.

Before proceeding with discussion let me present you with a quick review of the research literature on dropouts and attrition.

Australian Concern for Student Attrition

In the review and recommendations of the chapter on Evaluating the Quality and Efficiency of Post Secondary Education, the recent report of the Australian Committee of Inquiry into Education and Training (Williams et. el. 1979) presents a check list for assessing the effectiveness of the operations of tertiary education teaching institutions.

This check list is presented as a minimum mandatory one; my interpretation of mandatory is influenced by the use of the word "should" by the committee. It is presented thus:
"A short check-list should include the following questions":

(a) What are the objectives of the institution?

(b) Are the procedures for the selection of staff, the admission of students and the design of courses consistent with the objectives?

(c) What are the provisions for the induction of staff, staff development, and assessments of performance?

(d) Are there codes of professional conduct designed to ensure high quality in teaching and, where relevant, research?

(e) What are attrition rates?

(f) Are attrition rates regarded as reasonable in the light of admission policies?

(g) Is there provision for a review of examination results in credit courses in the different subjects and for various types of students?"

(p.809)

A further five points are added to the check list, but these are of no concern to this paper. This high level report has chosen as a measure of institutional efficiency the concept of student attrition. As used in this report, student attrition seems to refer to that difference between the numbers in an entering cohort of students to a tertiary education institution and the numbers who eventually gain the formal credential for which they enrolled. The committee is unclear as to whether attrition refers only to non graduation or to a combined measure of students who do not gain the credential in minimum time and those who do not gain their enrolled award.

This government report clearly identifies the concern for attrition and its various components such as dropping out and failure by students as a measure of institutional efficiency. It proceeds to place this institutional checklist within a hierarchy of checklists for the measurement of quality and efficiency in the tertiary education system. Checklists of action for government, for the education commissions, and for the institutions are presented. However, no checklist is provided for the individual recipients of the educational offering - namely the students.

This concern for institutional efficiency which underlies this high level committee interest in dropouts also appears in various forms in the writings of Australian researchers on this topic. Baumgart (1976) directs his study of discontinuance at

"... those who need to make management decisions in relation to higher education",

(p.1)

and is therefore quite open in his management orientation towards the wastage problem. Baumgart's concern for institutional efficiency is not as openly displayed to the same degree in a number of other Australian studies on dropouts or wastage. Rather an orientation of concern for both institutional and individual student efficiency is more evident.

Studies by Sheldrake 1976, Hayes 1974, 1977; and Rump and Greet 1975, express concern about dropouts as they reflect on the efficiency or quality of the institution as well as indicating some concern for the student. However, this concern for the student is often described from the point of view of the institution. For example, Rump and Greet (1975) state that:

> "Students who withdraw during the first half of their first year often do so because study is more difficult or less interesting than expected, and because their motivations relevant to academic work are weak. Matriculants should be advised to consider whether they really wish to pursue study at a university, and less able entrants should be advised as to initial courses likely to be within their interests and capacities.
>
> Previously enrolled students(sic.) who withdraw usually are experiencing temporary difficulties with employment, moving residence, or family commitments, and they should be given every encouragement to continue studies when their circumstances allow."
>
> (p.159)

This appears to suggest that the fault of early withdrawal lies with the student and it is the student who must change to or meet the standards of the educational institution, even if the reason for withdrawal is uninteresting presentation of learning experiences. However, successful students who later withdraw are viewed in a more kindly light by these authors. Note though, the authors implied orientation in either situation to the measure of course or degree completion as the yardstick for the measurement of wastage.

The Place of the Institution in Research on Dropouts

Apart from the management/efficiency orientation of the above citations three general characteristics tend to dominate the literature on student dropout, attrition and wastage. These are:

(a) that the authors of most of these articles are employed by institutions of tertiary education and the studies undertaken by them reflect the value stances of their institutions.

(b) that the variables examined within most of these studies are student based variables such as age, sex, social status, matriculation scores, measures of student commitment to study and student perceptions of academic environments.

(c) that the role and impact of institutions of tertiary education

> on student decisions to withdraw or persist, at the within institutional and between institutional level of comparison, has been largely ignored.

This last characteristic is the main object of the following discussion.

Summerskill (1962) alludes to these three characteristics in his review of the literature. For example he states that " ... previous research arose chiefly in institutional or administrative concerns ..." and proceeds to observe that " ... most persons studying attrition have had institutional or official concerns." (Summerskill 1962, p.628-629). Because of this administrative concern, Summerskill argues that studies on attrition were statistically simple in nature (descriptive and correlative) and attempted to view the consequences of attrition as institutional, economic and administrative problems. In suggesting directions for future research Summerskill further reflects upon past research and quotes Sandford to support his concern for a new research perspective.

"In research concerned with the tabulation or immediate prediction of dropouts institutional variables have typically been taken for granted or treated as constants." Rigorous research on these environmental determinants of attrition "might obtain evidence that the phenomenon had less to do with factors in the student than with a certain condition in the college itself, and this condition might immediately assume greater practical importance than withdrawal because it was not perceived as something that affected all the students. (Sandford, 1956)"

(Summerskill 1962,p.648-649)

In quoting Sandford, Summerskill has indicated that over a six year period (1956 to 1962), research on dropouts and student withdrawal focussed on student variables and largely ignored investigating the effect of institutions on student performance.

Later, Knoell (1966) indicates similar concerns. In setting the framework for her review she argues that " ... attrition is but one aspect of college attendance and flow, so is the student but one factor in the model for the flow. Other factors of equal importance are the collegiate institution and the system of higher education of which the institution is a part. Attrition may then be viewed as one type of resultant of the interaction of student, institution, and systems variables."

(Knoell 1966, p.63)

She then proceeds: "The lack of experimentation with action research programs to reduce the incidence of attrition was noted, together with the need for analysis of institutional or organizational characteristics which might affect attrition rates." (Knoell 1966, p.65) and elaborates on this by specifying that the "...study of the interaction of students and institutions with respect to non intellective (sic.) characteristics remains a major challenge in any program of research on attrition."

(Knoell 1966, p.72)

Knoell then proceeds to make another point which is important in determining the extent of direct contributions of research on the effect of institutions on dropout. This is that while there have been studies on college and student 'fits', that is the matching of changing student perceptions and attitudes to the college environment, very few studies relate these concepts and variables directly to the student attrition and dropout problem. This observation probably explains some of the differences in outlook between Tinto (1975) and Pantages and Creedon (1978) when they review the literature of institutional effects on attrition and dropout.

Tinto deplores the quality of research on the effect of institutions on attrition and dropping out and surmises that the "Analysis of the effect of institutional characteristics upon dropout has not been, however, as extensive as that relating to individual characteristics." (1975 p.111) Pantages and Creedon (1978) however report numerous studies on the measurement of college environments, but, as Knoell has indicated, few of these types of studies are directly related to the problem of attrition and dropout. Further, many of the studies reported by Pantages and Creedon do not directly assess the process and effects of interaction between students and institution as they rely on measures of effect and description from only one party involved in the interaction process - namely the student.

Heywood (1971) writing nine years after the publication of Summerskill's review reports that " ... investigations into withdrawal have not looked in any great detail at the interaction between the individual and the institution."

(p.192)

Heywood's observations are significant in that they apply to literature from both North America and the United Kingdom, whereas Summerskill's and Knoell's comments pertain only to North American studies.

Hayes (1977) provides some empirical evidence on students perception of the impact of the institutions on their decisions to withdraw and concludes that " ... the results of this study indicate that large discrepancies between students perceptions of themselves and the educational institution are significantly correlated with dissatisfaction with the institution and likelihood of dropping out ..." (p.147). This Australian study is one of the few that identifies a relation between the institution and a student decision to drop out. However, because of its ex post facto design detailed descriptions of effect of the institution on the dropout student are not provided.

General Characteristics and Implications of Past Research

The most outstanding shortcoming of the research literature on dropouts is the absence of articles which report investigations on the effect of variables internal to an institution on the decision processes of students who either voluntarily withdraw, transfer or fail. There are a number of studies which report generally the impact of particular aspects of the institutions on particular existing student group (Feldman and Newcomb 1969), Vreeland and Bidwell 1966, Centra and Rock (1971) but there are very few similar to that reported by Pascarella and Terenzini (1977) which investigate the interaction of institutionally based variables (student and staff informal interations) with outcomes such as voluntary student withdrawal.

Several authors and reviewers have stated that little is known about the impact of the institution on the withdrawing and failing student; the chronology of these studies suggests that their observations have largely been ignored by successive waves of researchers investigating the dropout phenomenon (Summerskill 1961, Knoell 1966, Heywood 1971, Tinto 1975). Why then has there been a reticence by institutions to examine the possible effects that they might have on dropout and failing students (clients)? One possible answer to this question is that the formal interaction of institution or its elements with students is a situation bound by covert perceptions of power and authority which clearly place the student as the victim or manipulable variable of the institution. The resistance of some institutions towards student orientated change has been identified by Astin (1976). Whether his findings are applicable to cultures outside the United States of America is not known, however they do suggest that institutions have difficulty in dealing with data which identifies problems internal to them. Especially if that data suggests that traditional policies and/or structures are creating problems for students.

Watkins and Morstain (1980) present findings from an Australian university which suggests that there are major differences in perceptions between teaching staff and students in relation to academic goals. They also suggest that these differing perceptions and expectations may influence the nature of the interaction between staff and students. In particular, they raise the possibility that differences in perception between staff and students may have an association with voluntary withdrawal by external studies students. Hayes (1978) presents some further evidence as to the role of perceptions or expectations in the decision processes of dropouts. For each of her five subgroups of dropouts, significant correlations were found between the discrepancy scores of the student's perception of self and perception of the university. It would therefore appear that perceptions of various parties are significant in developing a social interaction model of dropout such as that put forward by Tinto (1975). An investigation as to the effect of the institution on the student can probably then start by examining the perceptions of the staff employed by that particular institution towards particular types of students.

A perception from the literature is that within institutions of higher learning there is a tendency to avoid investigating or changing those things which are under most permanent control of the institution - that is elements of institution itself. Instead, institutions of higher education have concentrated on means of varying the mix of students at entry through the application of pre-entry test procedures, the provision of interventionist and counselling strategies that can be directed towards students while that student is within the institution, and occasionally a change in the style of presentation of formal learning situations. In most of these cases, it is the changes required in the practices of teaching staff. In many cases, these changes in entry criteria and counselling and interventionist strategies are based on studies which have attempted to predict the academic performance array of student background characteristics. However, as many authors have pointed out, failure and withdrawal rates remain stable and predictive studies of student success have not identified universally reliable and acceptable criteria. (Miller 1970; McDonnel 1975; Cope and

Hannah 1975; Summerskill 1962; Entwhistle and Wilson 1977).

The model presented by Tinto (1975) raises a number of issues relating to the investigation of dropping out. It is apparent that the interaction processes of Tinto's model are given support from past literature which has been largely cross-sectional in type and uses ex post facto designs to establish correlations and significant statistical interactions of variables to droppingout behaviours. Descriptions or results from longitudinal studies of the social or academic interations between types of students and elements of the institution are not well developed within the presentation of his model. This has resulted in some confusion in the distinguishing between the notion of statistical interaction and social interation. Assigned characteristics such as sex, economic status and attitude scores may have significant statistical interactions with a series of outcome measures on student persistence but they do not provide descriptions of social interaction processes or casual explanations about dropout behaviour.

This confusion of the term interaction is related to another issue - that is the one sided development of Tinto's model. This model is good for identifying the student components of possible factors in the dropout process, but is rather short on identifying and describing the institutional elements which interact with the student and which may contribute to the dropping out or failing process. This deficiency in Tinto's model is though a reflection on the orientation of most of the research done on student dropout and wastage in the last twenty years. If our knowledge about the differential effect of various elements of the institution on various types of students could be developed to a level similar to what we know about students then a more elaborate model and better understanding of the dropout phenomenon may emerge. However, this conclusion is predicated on two further qualifications.

The first qualification concerns changes in the methodological concepts and tools that are used to investigate problems of dropout and wastage. Tinto identifies the complex nature of the dropout process but describes the outcomes of his predictive model in terms of definite statements of probability. The uncertainty of prediction of this phenomenon has been described by Entwistle and Wilson (1977). This uncertainty suggests that it is perhaps more appropriate to talk about the outcome of dropping out in terms of less definite possibilities rather than hard-edged probabilities. Given this complexity of social interaction phenomena it may be appropriate to recast Tinto's model into forecasting models based on less definite certainties about outcomes which incorporate the notion or possibilities into sets of fuzzy variables. (Fiksel 1980).

The adoption of this type of analytic framework may encourage the additional use of ethnographic tools of observation and data collection in dropout research. This may lead to a situation where three sources of data about particular social interactions are collected. Namely, the perception of the student, the perception of the staff member (or other element of the institution) and the perception of the researcher. Data triangulation of this type has been absent from most dropout literature. Its inclusion would enhance the validity of many past studies which have relied on reporting only the student's perception of an interaction with elements of the institution.

The second qualification depends upon a change in the values orientation of institutes of higher education, and the bureaucracies which fund them, away from the perceived importance or necessity of instituting specific measures of efficiency which focus on the number of eventual graduates from an entering cohort of students.

If understanding of the dropping out process is sought, it would be appropriate to engage funding policies which do not force institutes individually to value their successful graduating students above those who choose not to proceed to formal graduation or those who fail. Some evidence now emerging is that a large percentage of voluntary withdrawers proceed to graduate at other institutions in the future (Eckland 1964, a.b; Maddox, 1979), and that dropping out is the best decision for a number of students (Hayes 1977). This suggests that the institutionally imposed labelling of students may be inappropriate and may obscure our wider understanding of this phenomenon. Selby-Smith's (1975) notion of "how many are brought how far" if applied to the entire tertiary education sector over a variety of time measurement ranges (short run, medium run, long run) may enhance the development of understanding of dropouts. This would occur as this approach allows for realization of mismatches between student and initial choice of institution or course, and the intervention to study caused by unexpected occurrences such as illness, financial difficulties or marriage. Short term institute specific measures of wastage and graduation from past studies have tended to regard students in an accounting sense and have thus contributed little to the understanding of the dropout phenomenon. What however is unknown in proposing this suggestion is the likelihood of institutions and funding bureaucracies adopting a more benign and systems wide view of dropping out and so called wastage from institutions of higher education. Australian evidence on institutional reaction to student oriented change in higher education has not been forthcoming - this may be a significant area for future research especially when student age structures and values toward credentialism may be changing.

Staff Perceptions of Student Stereotypes

As a first step in following a line of investigation which examines institutional reactions to students, I recently explored the perceptions of various groupings of staff at RMIT towards stereotyped student descriptors.

This investigation did not move directly into the evaluation of staff-student interactions and their effects on droppingout and failing. Instead it rests on two assumptions which ties the investigation down to more fundamental and static issues. The first assumption was based on Tinto's implied assertion, and Hayes (1977) explicit statement, that the staff of an institution of higher learning are in their own minds able to distinguish between subgroups of dropouts. The second assumption rests on the argument that it is the privately held perceptions of staff towards students or student stereotypes that initially flavour the first encounter between a particular staff member and a particular student. Descriptions of these pre-conditions of personal perceptions which influence the social interaction between staff and student are absent from the literature on dropouts from tertiary education institutions. Giddens (1977) suggests in a more general context that private perceptions of classes of objects often determine the action that people take towards those objects.

For those interested, details of the research can be obtained from me; I shall only report some results in this discussion paper. The results are based on data obtained from the staff at RMIT. Briefly the analysis of data suggested that there is no one simple description of the perception of staff towards student stereotypes. What however is common to the groups of staff which formed the basis of this study is the ordering of stereotypes between them. At the aggregate level the graduating student stereotype is ranked highest on most items and is clearly distinguished from the next stereotype, the typical student. Below the ranking of the typical student came the dropout and failing student stereotypes with hardly any difference between the profiles that staff have attached to them. Factor analysis of these profiles suggested however that a different emphasis or weighting of items is used by staff to distinguish the failing student stereotype from the dropout student stereotype.

This overall ordering of perceptions of staff appears to be maintained when the notion of staff is disaggregated. What is of interest and importance to the design of future research and policies are the observations that within this sample there were clear directions of perception by particular groups of staff towards particular stereotype labels of students.

Executive staff who each sat on at least four formal committees of the institute and were more likely to be members of at least nine, were the group of staff who were more positive in their perception toward the typical and graduating student than any other grouping of staff. This executive group, along with the administrative staff group though are least likely to have extended and regular contact with students. As most executive staff of a tertiary institution have at some time been teachers, it is likely that their perceptions of student stereotypes are based upon limited present contact and selective recollections of past contacts. Furthermore, as executive officers of an institute of tertiary education, they would more readily identify the purpose of the institute with typical and successful students than would other broad categories of staff. Those charged with administering the educational institution, and who often implement the policies made by committees, were the least positive of all staff groups towards the stereotype typical and successful student. In many instances the negativeness of perception of the administrative staff counterpoints the positiveness of the executive staff. The reasons for this negative association of administrative staff are charged with maintaining an institutionally based administration system. To them the occasional contact with their perceived typical student may means more work and more interruption to the administrative function. A student interaction with administrative staff then might be partly influenced by these negative stereotype images, This interaction or series of interactions may become a contributing factor in moving a successful or typical student to consider voluntarily withdrawing from this particular institution.

If the element of time is introduced into the formation of perceptions and reactions towards students it could be argued that initially both dropout and failing students are perceived to be typical students. That is until something happens, such as failing an exam or the seeking of deferment of fees, all students are regarded under the stereotype label as typical students. If this is so, then the negative outlook of administrative staff towards typical students may have an effect on some students in pushing them a little closer to the decision to voluntarily withdraw. This type of speculation about the possible effect of interactions between students and staff of an educational institution should be subject to empirical investigation. It is this type of study which is absent from the past twenty years of accumulated research on dropouts.

The other counterbalancing of perceptions is that between teaching staff and support/service staff for the failing student stereotype. Teaching staff are significantly more negative in their perception of the failing student stereotype and support/service staff are the most positive. Another speculative, but nevertheless commonsense interpretation of this observation, is that teaching staff place some personal valuation on the typical and successful student. Students who fail do not have the qualities that teachers value and associate with success. Consequently, teaching staff are most negative in their perception of failures in terms of their lack of worth as students, their lack of rationality and their overall dullness. Cast in their role as support services, it is expected that support staff such as counsellors would counterpoint the negative images of teaching staff towards failing students. Consequently, support staff are more positive about the dullness of failing students and attach greater feelings of worth to failing students than other staff groups. This would seem to suggest that in formal interactions of the failing students with the institution the failing student may receive more friendly attention if he is directed towards counselling staff rather than teaching staff. However, this type of policy may be seen by many teachers as a possible erosion of their presumed rights as teachers - even if they do have the most negative reactions to failing students.

What these results seem to suggest is that if we begin to examine the institutional component of the interaction of students and institutions in tertiary education and in particular the staff component of the concept institution, then complex differences of perception between groups of staff towards particular student types emerge. An awareness of these perceptions and possible associated actions may lead institutions to focus the attention of lowering attrition inwards and attempt to introduce policies which will positively influence the attitude of elements of staff towards students. This may then reduce an endemic environmental factor which could be affecting student-institution interactions, not just potential dropouts or failures. These institutional factors may turn out to be more readily manipulable than the passing parade of students and their individual characteristics.

On a closing note some other institutional factors which may be worthwhile investigating are the practices of institutions in advertising for, enrolling and later teaching to students. Anecdotal reports suggest that in the past some teacher education and engineering schools have admitted students who were known to have very little chance of success at tertiary studies, and after that magical funding and counting date in April, were not offered the guidance and care that might have helped them survive. But this is one of the tension points isn't it - maintain standards at the point of entry and therefore expect reduced enrolments and reduced funding/staffing or hedge on the entry standards, maintain student numbers and maintain funding/staffing ratios? In many cases the increased commitment required to assist marginal students is too much for some academics - the imposed system of funding encourages head counting.

APPENDIX - A NOTE ON DEFINITIONS

No one set of fixed definitions will suffice for all situations when it comes to using the words dropout, wastage, attrition, student mortality etc. Factors which will influence the variation of definitions for any one particular word could be:

(a) whether the user is speaking from an institution, educational systems/sector, individual or society at large point of view.

(b) whether the user attempts to imply understanding of the complex social processes associated with elements of each definition or whether the user is simply engaged in/on accounting or descriptive type procedure.

(c) the time/intent interfaces between enrolled student types at any given time and the institutions or systems that they are enrolled in. For example, the institutional time/intent stance of identifying attrition based on certificate completion in minimum time may be an inappropriate measure if a majority of the institution's students are part-timers who have enrolled either to gain specific skills but not necessarily a prescribed award, or intend to continually take breaks from formal education as they progress towards an award.

For a short-run institutional point of view, the following definitions are suggested:

(a) A dropout refers to a student who withdraws from an education institution after he or she has enrolled for a particular course, but does so before he or she has successfully completed the prescribed time and subject requirements for that course. Voluntary withdrawal therefore, could be used as a synonym for dropout. The complex array of reasons for withdrawing and their possible use as classifiers of subgroups of dropouts are for the moment set aside. For most institutional student record systems a short-term time frame of measurement is used. Therefore, the student who withdraws from a specified year is classified as a dropout, and any subsequent return to study at another institution or the same institution is ignored.

(b) Student mortality refers to those students who, when enrolling at a particular institution, die after enrolling but before completing the course. The analogy between failure and academic death is rejected. (see Reik, 1962).

(c) Attrition then becomes a cumulative measure which refers to the combined number of students who:

- (i) voluntarily dropout or withdraw
- (ii) are excluded by an institutional decision for reasons other than failure
- (iii) fail subjects and are excluded because they cannot meet the statutory requirements for proceeding through that course

(iv) die, while enrolled as students of that institution

(v) transfer to a second learning institution after enrolling at the first institution. (This is an institutional specific measure not applicable to the overall systems level).

(d) Wastage refers to all the categories listed under attrition as well as referring to the situation where some students fail some subjects and thus repeat some time segment of their course. This then incorporates the economist's notion that extra time is a wasted resource and results in a delay in qualifying.

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Part VII:

Change and Development

1. Origins of and support for university teachers' instructional innovations
   L. Andresen, D. Boud & J. Powell
2. Barriers to instructional development in universities and colleges
   I.D. Thomas & H.R. Poole
3. Chris in trouble
   C. de Winter Hebron
4. The new technicalities of educational technology
   E.C. Snell

INTRODUCTION TO PART VII

The institutional elements which strategies for change and development seek to effect may be conceptualized as an interacting set of task related, structural, participant related and technological/procedural variables. This conceptual framework suggests that change strategies which attempt to focus on one set of variables will influence and will in turn be influenced by other sets of variables. Within a tertiary educational institution for example, it would be naive to believe that change can be effected in teaching behaviour in isolation from other institutional variables.

The papers in this section focus on various aspects of the problems of effecting change in tertiary educational institutions. In so doing they indicate the interplay of institutional variables in terms of the change processes and new developments occurring in tertiary education.

Lee Andresen, Dave Boud and John Powell are particularly concerned to identify the conditions which influence and provide support for staff embarking on innovations in teaching and learning. They report the results of a preliminary study into a large and diverse collection of innovations within an institution based on the surveyed responses of the teachers concerned. Innovations appear to originate from the ideas of individual staff stimulated by their colleagues, study leave, professional training programmes, and other sources of information. The general support of their head of department and colleagues was reported to be an important factor in developing innovative ideas. Student acceptance and encouragement was an important factor although it appears to be necessary only in a benign way. Support from outside the institution was also an important factor in many developments. Institutional reward structures were strongly emphasised as a type of support necessary for encouraging teaching developments. The authors conclude that heads of departments have a crucial role in establishing a climate and reward structures which facilitate innovation.

Ian Thomas and Howard Poole examine the issue of change and development in teaching and learning from the perspective of instructional development offices. Their concern is to identify and analyse the barriers that tend to prevent these offices achieving their goal of facilitating the improvement of teaching and learning in their institutions. They identify barriers related to the instructional development officers: clients (knowledge, trust, commitment barriers); service (resources, skills barriers); and institutions (support, funding), reward structure, power structure, barriers). Ian Thomas and Howard Poole then outline the points which emerged out of discussion of the paper at the conference. Major suggestions for tackling barriers to instructional development included greater personal contact, more concern for accountability and evaluation, fellowship arrangements with faculties, and secondments, time release for inservice education activities, adjustments to reward structure to place a higher value on teaching and learning, monitoring and adjustment of utilization of resources to optimize effectiveness. Chris de Winter Hebron's workshop highlighted some of the barriers in the area of interactions between educational development staff and clients.

The last paper in this section looks at changes and developments in educational technology. Ted Snell describes developments of equipment used in teaching and learning situations in terms of a typology which includes: (i) the spoken word, (ii) the written word, (iii) the prepared image, (iv) the projected image, (v) the electronic image, (vi) electronic processes, and (vii) electronic carriers.

Within this typology he describes applications of sound receiving, recording and amplification systems, information, duplication, storage, and projection, electronic visual systems, electronic computational systems, etc.. He suggests that future developments are most likely to occur in video discs, satellite communication and fibre optic cables.

ORIGINS OF AND SUPPORT FOR UNIVERSITY TEACHERS' EDUCATIONAL INNOVATIONS

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INTRODUCTION

The manner in which change in educational practice occurs in higher education has been poorly documented to date. It seems likely that many untested assumptions prevail concerning the origins of change, the conditions that serve to stimulate change, and the nature of the support that might establish a climate for change.

Innovation studies have typically focussed on one particular innovation and attempted to follow its diffusion in time and space. In a large teaching institution comprising relatively autonomous Schools and Departments, however, we have become aware that at any given time there is a considerable number of more or less spontaneous innovations taking place at all levels from School or Department down to small groups and often individuals. These are, more often than not, unheralded and unknown about outside the small circle of teachers and students immediately involved.

It is reasonable that a Centre having a brief to support teaching and learning in the institution should be interested in this process of ad hoc, uncoordinated innovation on the part of individuals, Departments and Schools. It seems particularly appropriate that such a Centre should be concerned with how such innovation may best be encouraged and supported and its benefits to the wider institution enhanced. This study is a preliminary inquiry which looks at a large and diverse collection of innovations occurring over the space of about five years within the one institution. It attempts to trace these back in time, through the self-report of the teachers concerned, in order to discern some of the sources of influence upon the innovators and to ascertain the nature of the support they perceive as having been influential. It is hoped that this may throw some light upon how and why individuals and groups come to embark on innovations, and that this may in turn suggest some important implications for staff development work in a Centre such as this which serves a large university.

METHOD

During 1978 all academic staff at the University of New South Wales were invited to contribute reports to a Teaching Directory which was described as an 'exchange of information on teaching developments... a means whereby staff can obtain ready access to colleagues' experience in the field of teaching within their respective disciplines'. The Directory was intended to comprise brief accounts by staff of aspects of their teaching they thought might be of interest to colleagues so that staff could benefit from one another's experience.

In order to encourage contributors, the net was thrown very wide; criteria for inclusion in the Directory were left deliberately broad and fairly unspecific. It was, however, suggested that the sort of teaching development in which we were interested was any strategy initiated by an individual or group in an attempt to solve a perceived problem experienced with respect to some aspect of teaching and learning. It was, moreover, emphasised during negotiations with staff over their contributions that reports need not be innovatory in the sense of breaking new ground in educational practice, but rather that we were interested in a new approach to meeting particular needs and the 'day to day practical contributions staff make to improving the quality of teaching and learning'. It was especially emphasised that we were concerned with the 'transferability of the idea...its applicability outside the Department or teaching programme in which it originated'. The term 'innovation' was deliberately avoided and instead the less rigid notion of a 'teaching development' was employed throughout the dialogue with staff during the compilation of the Directory.

The Directory was completed in mid-1979 and widely distributed across the campus, subtitled "A guide to some educational developments at the University of New South Wales". It comprised 89 separate accounts of teaching developments for which 74 different staff were responsible associated with 40 Schools of the University.

During mid-1980 all staff who had contributed to the Directory were circularised with a questionnaire in connection with the present study. Forty-five returned a completed or partially-completed questionnaire, a response rate of 61%. Their replies made reference to a total of 50 reported developments, which comprise 56% of all those in the Directory. The questionnaire explicitly referred the respondent to the original report appearing in the Directory and, consistent with the policy mentioned above, referred to it as a 'teaching development'.

The questionnaire surveyed two distinct areas: (1) perceived sources of influence leading to the teaching developments, and (2) sources of support for this particular development and for teaching developments in general. It contained both fixed-choice and open-ended questions and gave ample opportunity for staff to add personal comments in respect of each area surveyed.

The respondent population has been analysed in terms of academic status and faculty representation (See Tables 1 and 2).

In the categories Professor, Lecturer and Senior Tutor the distribution closely follows that in the staff population overall. The categories Senior Lecturer and Associate Professor are over-represented and the category Tutor is under-represented.

The Faculties of Architecture and Professional Studies are over-represented in the sample though this reflects a similar trend in the Teaching Directory; Medicine was also over-represented but to a lesser degree. Biological Sciences, Commerce and Law are under-represented in the sample, corresponding to their representation in the Teaching Directory. In all other cases the representation closely parallels that in both the University overall and in the Teaching Directory.

RESULTS (1)

Types of innovation

In the Directory the original reports on teaching developments were categorised according to the more obvious single major characteristic of each. This was difficult to do in some instances where a choice between two or more competing characteristics had to be made. (See Table 3).

Influences

Respondents were asked (a) to identify which of 20 listed sources of influence had been operative in their case, and to estimate the degree of influence of each using a 3-point scale.

They were also asked (b) to describe any additional sources of influence beyond those listed, and (c) to comment further in their own words on both the source and the impetus behind the development. Only one respondent failed to carry out the exercise (a), and from those who did carry it out several additional sources were identified from the last write-in item. All but five respondents wrote some clarification of either the nature of the source or the impetus behind the development, and many responded by writing at some length.

(a) Sources of Influence (See Tables 4 and 5).

Three items appear prominently in the responses:

1. My own idea

Respondents mentioned either that they were deliberately looking for alternative methods to teach the subject and that they came up with this idea which they proceeded to try, or that they had a prior commitment to a particular idea and accordingly they were promoting it whenever possible. Others mentioned the importance of their own reasoning, and how the idea was part of a planned strategy, while some stressed how they first tested the idea by discussion with persons from industry and academia before attempting to implement it.

2. The logical next step

Necessity and inevitability characterise responses in this category. One respondent was the only person in his School with the skill to take on the responsibility; others referred to the process of normal development of a course, or the fact that certain technology already existed and it was rational to make use of it, or the clear advantage of doing something in order to reach a desired goal or to meet some pressing need. The latter was often expressed in terms of a need to seek ways of improving student performance.

3. Another institution: Study leave

These categories were originally separate but have been combined because the other institution was most often one that was being visited on study leave. Respondents mentioned getting a variety of new ideas during study leave and bringing them together on their return or else observing a friend or associate using a novel teaching approach at another institution and subsequently applying this to their own course at home.

(b) Additional sources identified

Beyond the listed sources, respondents mentioned a range of additional sources that had played a role in influencing them. These included professional training programmes, short reports appearing in professional newsletters and University Gazettes, computer manuals and enquiries from overseas. On occasions, the development was said to be part of a planned strategy within the School, while on others it was described as being to a large degree accidental.

(c) Comments on the source and the impetus behind the development

Analysis of these comments, noting the frequency with which the already-listed sources of influence were referred to, revealed the same pattern of relative importance as has already been noted, viz. (1) the logical next step, (2) my own idea, (3) another institution, (4) commerce and industry, (5) a colleague, and (6) study leave.

DISCUSSION (1)

There are difficulties in the way of accepting the most popular response, 'my own idea', at face value. Whereas 28 respondents mentioned the importance of this factor while at the same time denying any influence of colleagues, 13 gave credit to both factors. Although at the outset it had been emphasised that we were not looking for original innovations, it is plausible that people would nevertheless be anxious not to underplay their own contribution of effort and initiative to the development of the idea. Hence, what they intended by claiming it as their own idea may reflect simply an attempt to have this undeniable contribution recognised. There presumably exists a complex relationship between an innovator's own ideas and ideas gained from elsewhere, and this could probably be unravelled a little by individual interviews with respondents. This has not yet been done, but would be a logical next step in a study such as this.

At a time when the principle of academic study leave has come under attack from many quarters, it is significant that study leave and the consequent opportunity to learn from other institutions was claimed to have played an important role in influencing instructional innovations. It is probable that a teacher will be more likely to be convinced of the relevance and feasibility of an innovative approach by actually seeing it working at another institution rather than by merely hearing about it or reading a report of it. Study leave is usually justified in terms of its pay-off for research; the findings of this project suggests that its role in facilitating instructional innovations needs to be more widely recognized.

The somewhat odd status of'student evaluative comments' deserves some comment. It is claimed by many to have exerted some influence but by hardly any as having had a considerable influence. This suggests that the role of student opinion vis a vis instructional development is essentially a supportive rather an an initiatory one. Teachers may accordingly look to student opinion for encouragement and acceptance of their initiatives, but institutionalised status distinctions would tend to preclude the likelihood of student initiatives, if they did occur, ever being admitted as paramount in the innovative process.

RESULTS (2)

Support

Respondents were asked (a) to indicate which of 6 specified sources of support had been operative in their case. They were also asked (b) to specify any additional sources, (c) to comment further on those sources they had identified, and (d) to comment on the types of support they feel are necessary in order to foster teaching developments.

1. Head of School or Department

Most respondents (27 out of 35) reported having received the active support of their Head. Equal numbers (17 in each case) agreed and disagreed with the proposition that their Head was actively aware of the development without actually encouraging it. A minority (6) supported both statements, an anomaly that may have arisen because some developments spanned a considerable space of time during which support changed and, in addition, there may in some cases have been a change of Headship. Among the factors respondents considered desirable for facilitating instructional developments, support from the Head was cited among the most important.

Support from the Head had clearly been of great importance in several of the developments noted, in some cases from the inception of the work and in others a growing support as the new idea was tried out successfully a few times. On the other hand its absence was cited by several as being a major obstacle hindering success: "Not one of four Heads have ever set foot inside the lab. to see the system in operation". The Head's involvement does not have to be intrusive and some regard it as best for the Head not to be involved, but rather to provide a general climate of support for change. "The main ingredient is a prevailing approach to change and improvement, beginning with the Head of School".

2. Colleagues

Most respondents (26 out of 37) cited the importance of backing by colleagues, although about half (22 out of 41) nonetheless claimed to have pushed the development through unaided. The value of mutual support among colleagues was frequently referred to, not only among peers but also support shown by a senior to a junior colleague. A few mentioned, with regret, the problems that arose when such support was lacking and the demoralising effect when lack of interest or even hostility was shown by colleagues. In some cases colleagues were cited as having played a major influential role; at one extreme active collaboration and at the other obstructive criticism and opposition. One observed that other staff tend to be most anxious to use the new teaching aids produced by an innovatory project but that this is rarely matched by willingness to contribute to the project's development.

3. Students

A large majority (34 out of 40) mentioned the importance of student support, acceptance and encouragement in relation to the development in which they had been involved, and yet student support was mentioned only minimally among the sources of support considered desirable for encouraging developments. Whereas in one case it was reported that the support and enthusiasm of students alone carried the project to its conclusion, respondents otherwise showed a reluctance to comment further on this support. It may be that the role of students is viewed somewhat ambivalently. It can be taken for granted that student opposition would seriously inhibit instructional development and that success implies a substantial level of acceptance by students. However, to actually give credit to students for their support could be rather problematic for staff since it tends to conflict with the status hierarchy inherent in the lecturer-student role relationship.

4. Outside sources

This had not been offered as a fixed-choice item, but came up fairly strongly in the write-in section, particularly for some respondents who had failed to get support for their development from peers and senior staff and who found the moral and material support they needed from outside the institution. Such support was "a valuable counter to the wet-blanket attitude within the School". In a few cases funds donated by industry were perceived as crucial to the success of a project.

Relatively few projects enjoyed significant School, Faculty or Research Grant support of a financial nature, but opinion was strongly in favour of such financial support being made more widely available for instructional developments. One respondent suggested that "a criterion for research Projects Grants should be that the work may be used in support of teaching activities", and another deplored that in his case "the ERDC appears even opposed to encouraging development of teaching systems like this...most discouraging".

5. Career recognition: reward structure

No respondents cited the existence of any career recognition possibilities or any reward structure favouring instructional innovation as being a relevant factor in the development with which they were associated. It can be assumed that these developments were, probably without exception, undertaken in spite of the lack of any such potential for furthering the academic career of the staff member. This, if true, implies the existence of correspondingly strong intrinsic rewards for instructional innovation for some, perhaps many, of the staff. This is worthy of further exploration by means of interviews.

Institutional rewards were strongly emphasised as a type of support considered necessary for teaching developments. Some respondents spoke of the need for a "perception by academic staff that the investment of time and effort in teaching is rewarded by the University and by colleagues". Others stressed the need for this type of support to originate at high levels; "active encouragement from the University administration so that experiments and efforts to improve teaching and learning... are recognised and rewarded, e.g. by promotion, grants, etc.", and "support through the committee structure for 'change agents', so that they are not just dismissed as 'rebels'".

DISCUSSION (2)

These observations highlight the perceived crucial role of the Head of School in facilitating innovation. The Head has, it would appear, the capacity for supporting educational developments by:

(a) directly showing interest in and offering encouragement and moral support to innovators;

(b) making School funds available as well as supporting applications by staff for funds from outside the School, and this implies being conversant with the variety of such funding sources and encouraging staff to apply for them;

(c) encouraging an atmosphere or environment within the School that is supportive of educational development: in such a climate, mutual support among peers and colleagues would be more likely to be openly demonstrated;

(d) striving for improved career recognition for educational innovators. This would include encouraging staff to document their teaching developments in promotion and tenure applications, and actively supporting such applications once they were made.

A factor that emerges between the lines in this investigation, is the personality of the innovative staff member. It seems clear that some innovators are, temperamentally, 'loners' who carry out their work often in the face of opposition and in spite of minimal communication with and support from both colleagues and superiors. Others, however, are much more inclined to work within the system and, with a more outgoing approach, enlist the support of peers and more senior staff.

Comparing the two extreme types, it seems probable that less innovative staff will be unlikely to take the lone innovator as a model or be interested in adapting his or her particular innovations because the rewards would insufficiently balance the obvious costs in terms of social relations within the School. It could also be plausibly argued that in the case of the lone innovator there may be a greater likelihood of the innovation ceasing when that staff member leaves the institution, and less likelihood that the development will be diffused by being institutionalised.

An implication for a Higher Education Centre is the question of the relationship the Centre ought to establish with these various types of innovators. It is of interest to consider, for example, whether it is advisable for all, including the solo flyers, to be seen to be supported by the Centre even if this means that the Centre loses the goodwill of some Schools.

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THE QUESTIONNAIRE

Please examine each of the following sources of influence and estimate the degree of importance of each.

1 It was an idea of my own
2 It was the idea of a colleague in this University
3 I took over the idea from a colleague in my School or Department who had previously used it
4 In the normal course of development it seemed the logical next step to take
5 I heard about it being done in another School or Department
6 I heard about it being done in another institution
7 I learned about it while I was on study leave
8 I came across it at a workshop or seminar at this University
9 I read about it in the Teaching Directory
10 I read about it in a journal article
11 I read about it in a book or monograph
12 I heard about it at a conference or professional meeting
13 It was suggested by an educational consultant or advisor
14 It was suggested by a Visiting Committee
15 It was suggested by a committee within the School or Department
16 It arose out of consideration of students' evaluative comments
17 I experienced it myself as a student
18 The idea came from outside academia (commerce, industry, etc.)
19 Non-academic friends outside the University suggested it
20 I noticed it in advertisements or promotional literature
21 Other sources of ideas or influence (please specify)____________________

____

____

____

____

22 The idea was an adaptation of one, from the source I have indicated above
( ) yes ( ) no

23 Please comment in order to clarify what you regard as the main source of the idea ____

____

____

24 Please comment in order to clarify what you regard as the main impetus for the development of the idea ________________________________

____

____

With reference to the development specified above, please indicate whether you agree or disagree that each of the following was a source of support that you experienced whilst engaged on the development

1 I had the active support of my Head of School/Department

2 My Head of School/Department did not actively encourage it but was aware that I was engaged on the development

3 I received specific funds to support the development (please indicate source, e.g. School, Dean's fund, Special Projects fund, A.R.G.C., etc.______________________________)

4 I had the backing of colleagues teaching in the same or a closely related area

5 I pushed this development through virtually unaided

6 I received support and encouragement from my students

7 Other sources (specify)______________________________

____

____

8 Please comment further on the sources of support you received:

____

____

____

____

____

9 Please comment further on the types of support you feel are necessary in order to foster teaching developments____________________

____

____

____

____

Table 1 - Academic Status of Respondents

Rank	Representation % in sample	Representation % in university	Representation % in Teaching Directory
Professor	9	10	8
Associate Professor	18	12	16
Senior Lecturer	41	28	38
Lecturer	27	32	53
Senior Tutor	2	4	4
Tutor	2	14	5

Table 2 - Faculty Representation

Faculty	Representation % in sample	Representation % in university	Representation % in Teaching Directory
Applied Science	12	10	9
Architecture	14	6	11
Arts	9	11	7
Biological Sciences	0	9	4
Commerce	5	12	5
Engineering	14	16	16
Law	2	4	4
Medicine	12	9	14
Professional Studies	12	5	9
Science	14	14	15
Australian Graduate School of Management	0	2	0
General Education	0	2	0
Other	7	1	5

Table 3 - Types of Innovation

Category		Rounded % representation in sample	Rounded % representation in Teaching Directory
Courses:	course design and revision	2	1
	aims and objectives	3	2
	assessment	7	4
	tailor-made courses*	7 (19)	4 (11)
Classroom teaching:			
	techniques & strategies A-V and other aids	14	8
	computers in teaching	5	3
	alternatives to lectures	10	6
	role-play, games & simulations	5 (34)	3 (20)
Research projects & field experiences:			
	fieldwork group projects	7	4
	camps and exchange visits	3	2
	classroom projects & library research	3	2
	work & workshop experience	3 (16)	2 (10)
Students and their development:			
	recruitment, orientation & morale	3	2
	skills acquisition	9	5
	independence, autonomy & choice	7	4
	experimentation, problem-solving, creativity	5	3
	graduate students	5 (29)	3 (17)

(*These are curriculum innovations in which course content and/or teaching approach was 'tailored' to match the needs of a special group of students or to fill a gap in a teaching programme).

Table 4 - Sources exerting considerable influence

Source	Number of respondents identifying this item
My own idea	31
The logical next step	20
Another institution	5
Study leave	5
A colleague	4
Commerce, industry	4

Mean number of items identified per respondent = 2

Table 5 - Sources exerting some influence

Source	Number of respondents identifying this item
Student evaluative comments	15
My own idea	14
Another institution	14
A colleague	10
Another school or department	6
A journal	6

Mean number of items identified per respondent = 3

BARRIERS TO INSTRUCTIONAL DEVELOPMENT IN UNIVERSITIES AND COLLEGES

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INTRODUCTION

Instructional Development Offices (IDO's) or Instructional Improvement Programs (IIP's) now exist, in some form or another, on a large number of North American college and university campuses. Likewise, in Australia, fifteen of the nineteen University campuses have similar departments, e.g. the Higher Education Advisory and Research Unit (HEARU) at Monash University, and many of the Colleges of Advanced Education (CAE's) have Educational Development Units (EDU's). A common goal of these offices is the improvement of teaching and learning on the campuses they serve. There are, however, many barriers that interfere with the achievement of this goal. The purpose of this article is to open some of these barriers to public scrutiny.

The article was motivated by our experiences in a recent study at Western Michigan University in which 41 senior academics:
30 chairpersons of academic departments
 6 heads of academic support services
 4 dean- of colleges
 1 vice president
were interviewed to seek their opinions about the impact of the IDO on that campus (Thomas, 1979). So while the article talks in general terms about barriers to Instructional development and instructional improvement a number of illustrative comments which emerged from the study are used as examples. Readers are left to make their own decisions as to the generalizability of our "findings" to their own campuses and to draw on their own experiences in extending the list of barriers we have included here.

BARRIER CATEGORIES

For the purposes of discussion we have classified barriers to instructional development into three categories. These categories are not mutually exclusive and one might sensibly apply any of a number of other classifications and still provide a useful structure for discussions about the barriers to instructional development. For the present we are using the following categories:

Client or user related barriers

Barriers that interfere in establishing relationships with individual academics or academic departments.

Service related barriers

Barriers related to the IDO, its resources and the skills possessed by the IDO personnel.

Institutional barriers

Barriers created by institutional attitudes, priorities and reward structures.

Client or user related barriers

The barriers that arise here have parallels in other personal relationships which involve matters of confidence, trust, mutual or shared responsibilities, and in which the relationship grows through various phases as the personalities involved interact and adjust to individual biases and insecurities.

Knowledge is a key to these barriers - at least initially. Knowledge at one level simply means an awareness that an instructional development office exists, where it is located, how it can be contacted, who runs the office, and what activities it conducts or organizes, what services it offers and what publications it produces. Lack of knowledge of this kind is clearly a barrier which the instructional development office can overcome itself by maintaining a regular, relevant and readable information flow to its potential clients. Two aspects of this barrier which are beyond the control of the instructional development office are in ensuring that the information actually reaches those for whom it is intended and that it is read by those receiving it. At another level, knowledge relates to the sophistication and appreciation one has of the ambit and concerns of instructional development and instructional technology.

The knowledge barrier can be conceived as a continuum in which it is possible to identify stages of development from an initial awareness, through an exploratory request for assistance, to naive requests for ultimate solutions to teaching problems, to fervent adoption of one theory or teaching approach, to a growing state of sophistication and eclecticism which enables the accommodation and integration of a variety of theories and approaches. Attainment of such knowledge does not happen overnight and the effort involved in seeking this knowledge can involve the client in considerable personal cost (a matter we shall cover directly).

Partial knowledge (or sometimes, inaccurate knowledge) can give rise to fears and insecurities about an instructional development office. These feelings are heightened if the office is seen as an imposition on the academic scene or when there are overtones of compulsion about involvement with the office.

> People in this college resented the imposition of the instructional development office on the campus. The office was seen as a threat - that someone was going to tell them what and how to teach - that someone on the campus might know more about their job than they did. Later experience has shown our fears to be largely unfounded.

A common reaction to the feelings of threat or insecurity engendered by the presence of an instructional development office is an aggressive retreat behind a content or discipline barrier. The perceived threat is that the instructional development office is somehow going to usurp the individual academic's role as "expert"; that it will on the one hand tell him what to teach, and then on the other, how to teach. The argument then proceeds that because the people from the instructional development office (most often) are from different subject or discipline backgrounds they lack credibility or relevance because they do not understand the discipline. So these fears give rise to acceptance and respect barriers.

> The instructional development office is irrelevant because it does not understand our discipline, and the people in the office have no standing in our discipline.

Incomplete knowledge about the whole purpose and process of instructional development can also induce feelings of threat. This is particularly true of the evaluation component of instructional development. The fear is that through involvement with the instructional development office, the office is then in possession of knowledge about the individual (or department) that could be used by others in making judgements about personal competence. So questions of trust and the confidentiality of information present barriers in this situation.

Aside from the knowledge related barriers discussed above, there is also a commitment barrier to overcome. One aspect of the commitment barrier is an availability barrier - a willingness to invest some time in instructional development activities or projects. While there are sometimes difficulties in matching schedules of people in a large and complex organization like a university or a college, and some responsibilities can cause cancellation of involvement in an activity at the last moment, too often the argument is made that there is simply no time available to engage in activities that are additional to the workload associated with teaching responsibilities. The fallacy of this argument is that involvement in instructional development and instructional improvement is conceived as additional to rather than part of the teaching responsibilities.

> Faculty in this department are too busy to attend the kind of programs offered.
>
> Faculty in this department are reluctant to avail themselves of services. I am not sure if it is a lack of knowledge about the services or simply reticence on the part of entrenched faculty to divert from established practice.

> Faculty are too busy to attend these programmes. While the programs might be good, you cannot reach the people you really want to reach when they are offered on a voluntary basis.

> Faculty in this department do not have time to get involved in instructional development activities - they are too busy teaching. Perhaps the university could indicate its support of instructional development by closing classes for 1 - 2 days each semester to allow faculty time for such activities.

Unfortunately, arguments like this, are often an excuse or a rationalization for an inability to manage time effectively, as a cover for sheer inertia and a lack of openness to alternative or perhaps new approaches and a resistance to change; and sometimes it is a way of indicating the insecurities and concerns people have about the personal costs involved in making a commitment to do something about instructional improvement.

The personal costs referred to here are related to fears and insecurities about one's position and standing in academe and the achievement of personal goals. A common fear is that by seeking assistance from, or by becoming involved in an instructional development program the person is admitting some shortcoming in his knowledge and skills and so is laying himself open to ill-conceived judgements about his personal competence to do the job he was employed to perform. The more common fear is that by committing time and effort to instructional improvement activities the faculty member is somehow stunting his professional growth in comparison with his colleagues because these activities carry little weight in academic reward structures. It is even possible that involvement in instructional improvement activities are penalized in some departments that grossly undervalue the importance of teaching as a professional responsibility.

> Rewards in this department come from activities in other areas of professional responsibility. Instructional improvement activities are not a high priority professional responsibility.

> Present reward structures in the university do not assist the cause of improving teaching or the advancement of instructional techniques.

> Faculty in this department are too busy teaching or engaged in professional activities to be able to participate in instructional development activities. Instructional development is a low priority in this department.

> Instructional development activities are not high on the priorities in this department. Rewards come from other areas of professional responsibility. An instructional improvement office cannot have an impact in this department because people do not perceive a need for excellence in this area.

It is interesting therefore to find comments from people with a contrary view.

> In our department, our experience has been that in attempts to incorporate different media or to use different approaches in teaching, we have been forced to re-look at our professional field and what we are attempting to communicate. The result has been that we have developed a better understanding of our field.
>
> Efforts to improve instruction in this department have had a spin-off in the professional development of our faculty.

So the underlying concern is that the individual may in some way damage or inhibit his chances of personal advancement through involvement in instructional development. It is a sad commentary on university and college education that these fears are frequently reinforced in practice.

Service related barriers

Within an instructional development office itself, barriers can arise from the physical resources it does or does not have, i.e. the number of people attached to the office (a manpower barrier) and the equipment and financial resources available to support its operation (a resources barrier). To a considerable extent physical resources are dependent on the financial commitment the institution is prepared to make in supporting an instructional development office.

> The office cannot have a great impact on this campus because it has never been funded at a sufficient level to do so - nor was the commitment of the university such as to allow it to have an impact.
>
> To have a larger impact on the campus the office needs to have a larger staff to enable it to function in different ways.
>
> The office does wonders on a shoestring budget.

Barriers also arise because of factors related to the personnel employed in the instructional development office. The academic background, the experience, the interpersonal and other skills they bring with them or learn on the job give rise to a skills barrier which can limit the effectiveness of the office.

In an office which employs only one person, personality clashes with clients can impose barriers to some interactions, while in a larger office there are often greater opportunities to overcome personality problems of this kind. However, in a larger office there is a potential for personality conflicts between the people in the office itself.

Consideration of these service related barriers raises the important question about the optimum size of an instructional development office.

What levels of funding and staffing are needed for the office to achieve maximum productivity; to give an adequate coverage of the skills needed to cope with the number and range of requests for assistance in instructional development and instructional improvement; to give adequate support to each other and to keep enthusiasm high; to enable matches of personality and interest; to minimize administration and internal organization arrangements.

It would seem that an office with 4-8 persons plus appropriate support staff is needed to meet all of these criteria. Not all universities or colleges are large enough to support a commitment of this size, but many can. Such a commitment may require a complete examination of priorities between the various functions of teaching, research, administration and public service and a reallocation of resources. However, such a commitment would be an important step in recognizing that the pursuit of excellence in teaching is a legitimate academic function. It would also be a recognition of the importance that the teaching function has in maintaining the academic environment which enables other activities to occur.

Institutional barriers

As mentioned earlier an obvious barrier to instructional development is the level of commitment the institution is prepared to make to establishing, and supporting an office of instructional development. Given the importance of the teaching function in maintaining the economic health of an institution the question can and should be asked whether it is providing funds at a sufficient level to allow the development of an instructional development and improvement program that offers a comprehensive range of services - or is it guilty of tokenism; i.e. making a minimal financial commitment in support of limited and/or ambiguous objectives (spending conscience money to quieten critics).

> The office is not having much impact on the campus because there was never a commitment to fund it sufficiently to allow it to have an impact.
>
> I doubt if the office has been funded adequately to have the impact it should.
>
> The office was never intended to have a university wide impact or to effect major changes on the campus. It was intended that the majority of its work should be done with individual faculty.
>
> The office is essentially an information giver. I do not consider it should or does have any other functions that would assist the programs in my department.

The matter of the institutional commitment to instructional development and improvement activities is inseparable from the reward structures of the institution and the way they are administered. Do the reward structures encourage participation in instructional development or improvement activities or does such participation involve some penalty?

> The university reward structure does not support instructional development and the university has an ambiguous position about such activities.

> Present reward structures do not assist the cause of improving teaching or the advancement of instructional techniques.

Also related to the question of institutional commitment is the matter of the status of an instructional development office within the institution hierarchy. To whom does it report? To whom is it responsible? How big is its budget? Is it an arm of the administration helping it to make decisions concerning faculty tenure, promotion? How independent or autonomous is the office? For some people answers to the questions give an indication of the clout or importance attached to the office and its programs and helps them to set their own priorities.

> The office should be careful about the kind of materials it distributes. It can create an impression of having a lavish budget, a feature which is resented by faculty in times of financial stringency.

> Attachment of the office to the vice-president's office may give the impression that it is an arm of the administration. Given the present climate and faculty attitudes about the size of the administration budgets this could be a bad source of PR for the IDO.

> Faculty resent funds being spent on the office. We see the funds going to the office eroding funds available to this department. The appearance of the office on the campus and the growth of the administration budget are viewed as being simultaneous with cutbacks in the department budget.

> The office might have more impact if it was more closely aligned in an administrative sense to a college of the university - as it would be seen to have a closer academic or faculty affiliation.

> The office should report directly to the faculty senate - the body responsible for academic affairs on a campus wide basis.

> Funds for instructional improvement should be allocated to departmental budgets where they will be more efficiently administered. Instructional improvement is a departmental responsibility.

CONCLUDING COMMENTS

The discussion we have presented here about barriers to instructional development is based on our collective experience in North America and Australia, and particular reference has been made to a recent study conducted at Western Michigan University. The list of barriers is not exhaustive by any means and readers may wish to add other barriers they have encountered in their own experience. Readers may also wish to impose a different structure in categorizing the barriers we have listed. The important thing to understand is that the barriers do exist and that they do interfere with the important business of instructional development and improvement.

DISCUSSION OF THE PAPER AT THE CONFERENCE

The above paper (published) in HERDSA Newsletter 3(1). 1977, 5-6, 8) was used as a starting point to explore means of overcoming the barriers to Instructional Development identified in that paper.

Given the events of recent days following the report of the Lynch Committee (more commonly known as the Razor Gang), the general climate of gloom and doom in tertiary education since the funding cuts in the Hayden budget of 1975 and further cuts each year since that time, it may seem like a colossal oversight to have not included Government economic policy as a key barrier to instructional Development.

It was not an oversight but a deliberate omission which stems from a belief that regardless of what Governments do to institutions of higher education (short of actually closing them down) - the professional, intellectual and organizational climate within the institution rests firmly in the hands of the academics, students, administrators and support staff that make up the institution. Salvation from the present depressed and depressing climate can and must come from within the institution itself. Further, the resources, intellectual and material, for the renewal, revival and revitalizing of the climate of the Australian university and college campuses already exist on most campuses. All that is required is the courage and the will to make the necessary reappraisal of policies, procedures, programs and priorities, the consequent reallocation and redeployment of resources and perhaps some significant shifts in attitude.

Instructional development should not be treated in isolation. It is part of a much wider concern about the quality of the academic environment of a university or college and should be seen within the context of its relationships with:
Professional and Personal Development
Organizational or Institutional Development
Evaluation and Accountability

OVERCOMING BARRIERS TO INSTRUCTIONAL DEVELOPMENT

A range of possiblilities for tackling the barriers to Instructional Development were raised.

Knowledge Barrier

The possibilities canvassed here seemed largely to lie within the control of those most concerned with Instructional Development within an institution.

* Advertise - using printed or other media, the existence of the Instructional Development facilities available and how they can be obtained

* Personal contact - visit departments, department meetings etc. to tell people about Instructional Development - i.e. be visible, or in the common jargon - take a high profile.

* Provide services that are seen to be valuable and which roll back the knowledge barrier about the educational aspects of an academic's professional teaching functions.

* Become more actively involved in promoting and using accountability in the education enterprise, particularly those aspects of evaluation and accountability that have a positive or enhancing function. This certainly should be encouraged as a way of bringing about the reappraisal of policies, procedures, programs and priorities mentioned earlier.

Discipline Barrier (and to some extent a Credibility Barrier)

The possibilities canvassed here were largely related to the ways in which the processes of Instructional Development are accomplished.

* The use of F.I.D.O.'s (Friends or Fellows of the Instructional Development Office). These are people from within an academic discipline who have contact with, have worked with an IDO or independently have made significant contributions to Instructional Development, and who provide a bridge between the discipline and the IDO.

* Staffing of the IDO by joint appointments of people to a faculty or School and the IDO (as was done when Griffith University was established).

* Secondment of academics from departments to the IDO while they complete a project of Instructional Development. This could be a full time or part time arrangement for a fixed term to enable the Instructional Development project to proceed free from the distractions within the academic's own department.

* A heavy handed but powerful economic approach which involves a full time commitment of an Instructional Development team to a department to develop new or redevelop unsatisfactory programs. The example of this approach is to be found at Syracuse University.

Commitment Barrier

This is a point where there is an important overlap (some might say conflict) between Instructional Development and Professional Development. A creative approach or a comprehensive university or college wide approach to Instructional and Professional Development make this conflict unnecessary. Most of the suggestions surfacing here relate to changes in administrative arrangements which facilitate the finding of the necessary time and motivation to engage in Instructional and Professional Development.

* Time release from the academic program to enable attendance at in-service activities (defined in the broadest possible sense).

* Reorganization and restructuring of the entire academic program and the individual's commitments within it, so that useable blocks of time are created in which responsibilities for students cease entirely and the academic is free to pursue instructional or professional projects. The best example of this approach is the scheme implemented at that University of Wisconsin - Oshkosh.

* Probably related to, or as an adjunct to, the previous point there is a need to establish within the framework of the Instructional and Professional Development program a service for career counselling and career planning in which individual academics are aided in drawing up a set of personal goals and objectives related to their various academic functions for a set period of time. No such services exist on Australian university and college campuses - yet this seems to be a crucial element in bringing about the renewal of academic vigor in Australia.

* Adjustments to the Institutional Reward Structure which recognize and place a true value on instructional as well as research/publication and administration activities.
  e.g. Excellent teacher awards
  Salary increments for master teachers
  Provision of funds to support
  Instructional Development activities.

Resource Barrier

This is an area in which a considerable element of evaluation is required. Most colleges and universities have enormous repositories of equipment and human resources which are not necessarily being used to best effect. Hence, overcoming the resource barrier would include -

* Reappraisal of equipment purchasing and deployment arrangements to eliminate unnecessary duplication and to facilitate sharing of equipment, and to some extent rationalization of equipment types to facilitate maintenance arrangements.

- Reappraise course offerings to eliminate the unnecessary proliferation of special purpose service courses for relatively small numbers of students.

- Reappraise the deployment of staff involved in the teaching of the academic program and the methods used in instruction to ascertain whether more cost effective methods can be employed. (Cost effectiveness does not simply mean cheaper in this context - it also includes the effectiveness of achieving the objectives of the instruction as well).

CONCLUDING COMMENTS

Appraisal of these suggestions about overcoming the four barriers to Instructional Development that were discussed indicate the need for a well co-ordinated approach to the whole complicated network between
Instructional Development
Professional and Personal Development
Organizational Development
Evaluation and Accountability

Such a program would provide a considerable source of inner strength for an institution and provide the continuing means for providing opportunities for renewal even in the most adverse circumstances.

If we accept that the only sure way to this renewal can come from within the institution itself, and the resources it has available, it is imperative that everyone within the institution works towards the husbanding of those resources so that the climate for renewal and development can be established. The health of our institutions and our own academic well being depend upon our own actions.

REFERENCE

Thomas, I.D., "A ring does not a marriage make" or An impression of the impact of DIC/OID on the Western Michigan University, Kalamazoo, 1979.

CHRIS IN TROUBLE

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This workshop which demonstrated one of a series of sets of staff development materials being prepared for publication by SRHE Guildford(UK)in July, was intended for staff at three levels:

- a) Staff of academic departments who are contemplating setting up a teaching evaluation / consultancy process.
- b) Professional staff developers (particularly early in their career.)
- c) Staff development associates in academic departments, eg university senior colleagues

In the workshop the participants, grouped in threes, played the roles of members of a team of academics or staff developers who were meeting to decide the strategy to be adopted in counselling a lecturer who had run up against a linked series of personal and teaching problems. Papers describing these problems were given to each group, which had to devise a coherent counselling strategy and then explain it. After an initial period, each group was told to take a 'Chance' card which gave additional,unexpected information about the situation. Groups had to respond to the information by modifying their scheme. The session ended with each group reporting in plenary on (a) its initial strategy and (b) how it changed to cope with the Chance card.

The workshop's main objective was to stimulate participants to think about the nature of the teaching development / teaching consultancy process, and about the true nature of "teaching problems". Central to the workshop were the notions that

- there are no unique "right solutions"
- all solutions are approximate only: there is never enough time or the conditions are not right to "do it properly"
- all teaching development work is transactional in character, and involves acceptance rather than judgement
- all teaching consultancy processes are matters of negotiation
- all the available data is often (as in this case) imperfect - biased, subjective, "contaminated", improperly used - but is often all there is to go on
- "teaching" and its problems cannot be separated off from the rest of academic and personal life.

Subsidiary objectives were to bring the participants to examine the effects of sexism upon academic life, and upon their own solutions, and to open up discussion of the whole question of teaching "evaluation", its purposes, its outcomes, and the use and misuse of rating forms.

THE TECHNICALITIES OF EDUCATIONAL TECHNOLOGY

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In June 1972 the Carnegie Commission on Higher Education published a report titled "The Fourth Revolution, Instructional Technology in Higher Education." The report derived its title from the contents of an article "Machines, Understanding and Learning: Reflections on Technology in Education" (Ashby, E., 1967).

Ashby identified four revolutions in education of which the fourth is portended by developments in electronics, notably those involving radio, television, tape recorder and computer.

The Commission in its report also identified the efforts which had been made "to take the machinery of the fourth revolution out of the spotlight and to assign such novel media as computers and television a place in the ranks alongside the slide projector, the textbook and the teacher as useful participants" (p.10).

Gass (1971) in the publication "Educational Technology: The Design and Implementation of Learning Systems" says "Educational technology is not a mixed bag of mechanical tricks, but the organized design and implementation of learning systems, taking advantage of, but not expecting miracles from, modern communications methods, visual aids, classroom organization and teaching methods" (p.7).

Tickton (1970) reports that two years earlier than the observation by Gass the U.S. Department of Health, Education and Welfare's Commission on Instructional Technology (The McMurrin Commission) offered a definition with slightly more emphasis on the role of learning theory. It defines educational technology as "a systematic way of designing, carrying out and evaluating the total process of learning and teaching in terms of specific objectives, based on research in human learning and communications, and employing a combination of human resources to bring about more effective instruction."

As the years have gone by this definition has been refined and reinforced where, in the simplest of terms, proponents of the cause have assigned to the phrase "educational technology" the meaning "the science of the techniques of education."

Unfortunately an ambiguity arises in the use of the term 'technology'. In the phrase educational technology there now appears to be little doubt that it is being used in terms of the above definitions. However, when reference is made to the technical equipment associated with the teaching/learning situation reference is often made to the "technology of education."

The technicalities that are to be considered in this paper are the various types of equipment used in teaching/learning situations. The introduction of equipment into the educational process will be considered as will the development of that equipment to its present level of operation. An attempt will then be made to look into the future to see what new equipment or facilities will be available for use in education and what impact such equipment and facilities may have in the educational process.

In his book "A History of Instructional Technology" (1968), Paul Saettler observes that in U.S.A. the stereograph was familiar in classroom by 1885 and was followed by its direct descendent the lantern slide which by 1900 was widely used. Motion pictures, he claims, were introduced into the classroom in 1910 and radio was used in 1920.

These are the types of equipment which have come to be associated with educational technology, however the earliest form of equipment for education was the totally human resource - the parent or grand-parent. All that the child had to do was equip himself with a parent or grand-parent and he was on the road to learning. In the beginning the only form of instruction was the spoken word. As civilization progressed, writing was developed to be followed in due course by printing.

The simplest equipment for instruction by writing is a piece of soft ground and a finger. As we climb the tree of sophistication we exchange the finger for a stick, the ground for clay, the stick for a stylus, the clay for papyrus, the stylus for a quill. And for those of us who ever used them how well we remember the slate and slate pencil.

The gathering of children together for formal instruction gave rise to the slate and slate pencil, blackboard and chalk the whiteboard and markers. Into the classroom came charts, maps, models and specimens and so the equipment of education began to multiply.

In the survey of equipment in education consideration will be given to each of the following in turn:

1.The spoken word.

2.The written/printed word.

3.The prepared image.

4.The projected image.

5.The electronic image.

6.Electronic processes.

7.Electronic carriers.

The spoken word.

For the spoken word there is a need for an acoustically suitable area in which to speak - no outside noises penetrating in to the area, controlled reflection of sound within the area. This is as important to a group of two as it is to a group of two hundred. The larger the group the greater the problem. The farthest person from the speaker should not have to concentrate too much to hear the speaker. The speaker should not have to raise his voice to a shout to be heard.

In the large group situation it is now possible for lecturers to use speech reinforcement systems. In this situation it is necessary to have the loudspeakers placed in the optimium position which reduces the possibility of acoustic feedback and in order to provide enough "lift" to the voice.

The advance in loudspeaker design for speech reinforcement came with the introduction of the "sound column" speaker system. This system, which is a vertical stack of loudspeakers has certain directional properties and radiation characteristics which provide a significant improvement in sound propagation as compared to the single speaker. At the moment there does not appear to be any further developments which can be seen to improve on the sound column for speech reinforcement. The most effort in loudspeaker design seems related to the reproduction of high fidelity sound or the propagation of high volume, acceptable quality sound for rock concerts and discos.

Amplifiers to drive the loudspeaker have improved considerably in recent years. They are able to achieve very low distortion amplificiation over a very wide range of sounds without undue complication.

Older amplifiers which had a high distortion content were often operated with the higher frequencies toned down i.e. the tone control was adjusted to reduce these high frequencies so that the sound was 'more pleasant' or 'less strident'. Unfortunately this operation of the tone control also reduced the intelligibility of the sound as most of the sense of the spoken word is contained in the upper register of the voice frequencies. This resulted in the voice reinforcement system producing a muffled sound which required a great deal of concentration to try and make sense of what was being amplified.

Another improvement in sound reproduction in recent years has been the microphone. Not so long ago a microphone of acceptable quality was quite expensive. Many speech reinforcement systems in the past were rendered much less than satisfactory because of the poor choice of microphone. The choice was often based more on cost than an audio quality. The lowest cost microphones today are still not very good, but the 'electret' microphone, amongst others, is relatively inexpensive and produces a very good quality signal.

Lavalier microphones are normally designed to compensate for their not being spoken into but over i.e. they are hung around the neck or clipped to clothing in the vicinity of the chest and the speaker under normal circumstances does not direct his mouth towards it. Remember this if you want to use a lavalier microphone as a hand-held microphone.

Another big improvement with lavalier microphones particularly, is their size and weight, the latest lavalier microphones can be very small and very light.

Usually the microphone is connected directly to the amplifier by a shielded cable, which is no problem if the person using the microphone is not moving around. If the speaker is moving around then that person must develop a method of coping with the cable so that it does not tangle around his feet.

Radio (wireless) microphones overcome the cable problem. The microphone is connected to a battery powered transmitter which can be placed in a pocket, clipped to a belt or tied around the waist. Handheld microphones will have the transmitter housed in the case of the microphone. The receiver to pick-up the transmitted signal is usually placed near the speech reinforcement amplifier and connected to it just as if it were the microphone.

The radio microphone allows complete freedom of movement of the speaker without trailing cables, however as the speaker moves around there may be areas where the signal "disappears" due to reflections of the radio waves within the room or absorption of the radio waves by metal girders, pipes etc. in the walls and ceiling of the room.

Care must be taken to ensure that where radio microphones are to be used in rooms near each other, they have each been chosen not to interfere one with the other.

In addition to the loudspeaker reinforcement of sound it is possible to use headphones or hearing aids which could be of some assistance to the hard of hearing. It is also possible to provide headphone/earphone systems with or without loudspeaker sound reinforcement.

The first headphone system to be introduced used a loop of wire placed around the perimeter of the room and then connected to a speech reinforcement amplifier. This system is continuing to be available from a number of suppliers. Appropriate headphones with "magnetic" receivers built in to them are required. Alternatively, hearing aids with the additional facility to receive "magnetic" signals can be used.

The most recent system to be introduced uses an infrared transmitter. Headphones with infrared receivers are needed in order to reproduce the sound signal. Such a system can be used to transmit and receive high fidelity mono or stereo sound. There are a number of these cordless headphone systems available. Because the transmitter is comparatively small the transmitter can be moved from place to place quite simply. Those people wearing headphones are also free to move around as long as the infrared pickup device on the headphone is able to receive the transmitted signal. This does not mean that they must necessarily be directly facing the transmitter.

One use of an infrared system is in work with medical students where groups may all hear heart-beats of a patient through their earphones. The doctor leading the group uses a stethescope connected via a microphone to a number of infrared transmitters which give a full 360° coverage from a pillar on a mobile trolley. The trolley carries all earphones and a charging unit to recharge all the batteries used with the earphones when the unit is not in use.

If you were the patient imagine how much more comfortable it would be to be prodded by only one cold stethescope instead of a number of them one after the other. How much better it is for the instructing doctor, instead of hoping that each individual has accurately placed his stethoscope to hear the sounds correctly, to know that all students are hearing the sounds they are supposed to hear.

The loop system or the infrared transmission both lend themselves to connection to individual audio tape recorders. The infrared system can be supplied with transmitters on different frequencies so that two or more transmitters with their appropriately tuned headphones can operate without interference one with the other.

This system is useful for instantaneous translation services at international conferences where a person can be supplied with the appropriate headphones e.g. for English, for French, for German etc. The headphones are independent of connectors or switches.

It is now very easy to record the spoken word. Audio cassette recorders at least operate to a basic standard with the same size casette and a common speed, although some manufacturers are supplying machines which operate also at twice and some at half the normal speed.

At the moment it is difficult to foresee any revolutionary change in education as a result of future developments in equipment used with the spoken word. Refinements will occur which will improve the quality and reliability of the equipment used, but within the context of the spoken word in the lecture theatre and with the individual, there appear to be no new and different facilities imminent. We seem only to be able to anticipate better ways of doing the same things.

The written /printed word

The written word alone provided a very limited resource for teaching and learning. It was not until the invention of printing that the widespread use of that which had been written could be used for the education of any but a small group of people.

Today there are a number of problems associated with the printed word. The problem for the individual is to find the time to read all that is available to be read. The respositories of the printed word, the libraries, have to find space to store it, and having stored it, ensure that they can retrieve it again. International cataloguing systems have been instituted and inter-library co-operation on shared holdings become more necessary as it is accepted that not all libraries are going to be able to hold all the printed matter on all subjects.

In order to overcome storage problems there is the reduction of printed matter to microfilm and microfiche. Some material is now being published only in microform with no consideration being given to its availability in hard copy, simply because of cost. Examples of publishing in microform at the moment seem to relate mainly, if not exclusively in Australia, to library indices which, when once on computer, are easily and at comparatively low cost, transferred to microfiche. The prime example is the National Film Lending Collection of the National Library of Australia where the catalogue consists of 27 microfiche and as such is the first comprehensive catalogue of their films for 20 years. The issue in hard copy has been considered and rejected on the grounds of cost.

The reduction of printed matter to microform is achieved quite simply with a camera taking a photograph of the material.

While the reduction ratios seem to be very great, they are not as great as those achieved by most people with their pocket instamatic camera - a 180 cm person can become a $1^1/_2$ cm image of the person i.e. a reduction ratio of 120:1. The normal microfiche reductions are 24:1 and 48:1 while some can be as high as 110:1 (ultrafiche).

With people and places being photographed the specifics of detail, particularly in colour photography are not required. Microform photography does have to ensure that the fine detail is correctly rendered however, and not lost because the film or the camera used are inadequate for the purpose.

The material to be reduced is photographed on 35 mm, 16 mm film or microfiche film which is approximately 105 mm x 150 mm. The 35 mm images are either held as a roll on an open reel, as a single frame mounted on a card (the size of a computer card) which is called an aperture card, or mounted as single frame or multiple frames in a clear plastic jacket approximately the size of a microfiche. The 16 mm images can be held as a roll of film on an open reel, enclosed as a roll of film in a cassette or cartridge, mounted on an aperture card as supplementary information to the 35 mm frame, or mounted in a clear plastic jacket as a single frame or multiple frames.

The images on the film cannot be read without the assistance of other equipment such as a powerful magnifying glass, or the projection of an image on a screen. These devices are called readers.

The magnifying glass type of readers are usually hand-held and designed for easy carrying. They are very limited in their use. The projection style of readers can be for front or back projection of the image and they are usually self-contained units which include a screen. Those that do not have a screen are designed to project on to a wall or a separately supplied screen.

Like all projectors the readers consist of a light source, the film carrier, a lens and a screen. The basic aim is to have a clearly projected, easily read image which can be seen in normal ambient light. More efficient light sources have been developed in recent years and perhaps more improvement can be expected in that area. High quality lenses which focus clearly over the whole image area and which do not reduce the light level too much could be made available at a price. There are many improvements which could be made to readers, but limits on the improvements are imposed by their cost and what people are willing to pay.

The design and general construction of all the equipment associated with microforms has changed little in recent years and there does not seem to be any spectacular change likely in the near future.

Educationally, there has been experimental work conducted in South Australia with visually handicapped children; in some overseas universities colour microfiche are replacing 35 mm slides sets in the study of medicine, and in TAFE here in Victoria individual learning packages contain colour microfiche instead of 35 mm slides.

The prepared image

The prepared image, our third consideration, also seems to have stalled with no revolutionary developments for blackboards, chalk, whiteboards, markers, chart preparation, map hangers, models etc.

There has been a significant improvement in photocopiers in recent years so that ordinary bond paper can be used with a completely dry electrostatic process. The final copy is rich in carbon and therefore very useful for the preparation of heat processed overhead transparencies. Original material lacking in carbon can be photocopied and the copy being rich in carbon provides a good basis for the making of an infrared processed transparency.

It is not necessary to emphasise the simplicity with which it is possible to provide multiple copies of diagrams and notes of good quality. Copyright amendments pending!

Offset duplicators have not undergone the changes made in the area of photocopying, but the manufacturers have tried to refine the operation of their machine in order to reduce as far as possible contact with the messy ink and cleaning processes which are so much a part of offset machines.

Educationally however, there appears to be nothing revolutionary in the foreseeable future, just as there has been nothing in the immediate past. It seems that we shall continue to do the things that we have been doing albeit more simply.

The projected image

The most recent introduction of equipment in the area of the projected image was the overhead projector, and it very quickly reached the limits of its applicability as an educationally useful device. Seen originally as a replacement to the blackboard it was soon presented as a device available for the projection of pre-prepared diagrams. Drawings, summary headings etc. could be produced by the presenter as an overhead transparency without great difficulty and certainly without the comparative complexity of the production of 35 mm slides.

A simple form of so-called animation can be provided by the use of a polarized filter rotating in the light passing from the stage to the lens. Only a repetitive flowing style of movement or "blinking" areas can be produced by the use of this attachment.

The last developments of importance in overhead projectors relate to improved light sources, lower temperatures on the stage and reduced glare for the person using the projector. Some projectors have noisy cooling fans, others do not, and so on.

Slide projectors have not undergone any significant changes over the years. Here too changes have been made only as a refinement of the equipment. More efficient lamps and more reliable slide transport mechanisms are all that can be seen as making their use of slide projectors more pleasant for the presenter. But even in these areas many years have passed since the early concepts for improvements in light efficiency and reliability were well under development and subsequently available.

Special highly reflecting, and therefore highly directional, screens allow the viewing of slides in bright ambient light on the one condition that there is no stray light striking the screen from the same direction as the beam of the projected image.

If the slide projector and screen are permanently mounted in the area of use, there is much greater chance of their being used than if the presenter is required to transport a slide projector, a projector stand and a screen with him wherever he has to go.

The same can be said for the 16 mm movie projector. However, the movie projector is more bulky, heavier and requires a loudspeaker for the sound. It is generally accepted that people require training to operate a movie projector but only minimal, if any, training is necessary in order to successfully operate a slide projector.

Early model motion picture projectors had 1000 watt incandescent lamps operating usually at 110 v, so that a heavy transformer was needed in order to be able to use the machine. The development of the new low voltage low wattage more efficient light sources introduced some changes in general design, although at that time the film still had to be threaded manually.

With the introduction of automatic threading came a new era in film mutilation and today film lending libraries continue to report that their problems do not stem from projectors which require the film to be manually threaded. But this prompts the question as to how many manually threaded projectors continue to be in use today.

Very strong efforts have been made to provide fool-proof, simple and reliable automatic threading systems and fortunately the more recent models are far superior to the first ones on the market. However, there seems to have been no real attempt, or perhaps "need" is the word, to change the basic film transport mechanism. Promotional literature is torn between emphasising the features of the new models, which seem to be changes of a "cosmetic" nature only, on the one hand, and the proven reliability of a mechanism unchanged for many years on the other.

Sound from film made a big leap forward with the replacement of the old photo-electric cell of large size with the newer much more sensitive solid-state photovoltaic and photoresistive miniature devices. Coupled with the newer methods of sound track manufacture, the quality of sound possible now is a far cry from the days of hissing, crackling and booming unintelligible sound. Although good quality sound is not difficult to achieve, insufficient concern for the production of a good sound track often means a far from satisfactory final result.

Fortunately the days of the old "hot box" have gone. 250 watt lamps are much easier to cool than 1000 watt lamps and the amplifier now generates very little heat as compared to the vacuum tube amplifiers of old.

The logistics of providing an adequate presentation of 16 mm motion picture film to a room full of students has defeated many a budding educational technologist, and is likely to continue to do so. The old question "Is the trouble worth it?" is often answered by "No". Not only is the problem of having an adequate facility available in a suitable place at the right time a difficult one to solve, but with this is coupled the problem of being able to obtain the desired film when required. In Australia, the land of free loan films, it is quite a battle to have funds made available to purchase a film - a not inexpensive transaction - for use once or twice a year.

The electronic image

Television brought to education in the classroom a gadget which was easy to use, did not require blackout facilities and although the picture was not as big as the projected motion picture film, at least the students at the front of the class could see and the students at the back could guess what was going on, if they could hear the sound.

Television projectors have never been held in high regard. The projected pictures always appeared to be out of focus, the television picture line structure could often be seen, and the picture could only be viewed in a blacked out room. In addition to all these things they were expensive. With the advent of colour the increase in price was about three-fold.

A number of developments have made the television projector more worthy of consideration - the first being the use of a highly directional screen such as referred to earlier when discussing slide projection. Ambient light is not a problem, unless it comes from the same direction as the projected television picture. The contruction of many of the units renders this highly unlikely. In addition, the television projection tubes have become much more efficient which has meant an increase in the intensity of the projected picture. Other factors which have improved the appearance of projected television include the method employed to obscure the line structure of the picture and the way in which the picture signal can now be processed in order to make the picture appear to be properly focussed.

As with nearly all the other types of equipment so far considered, these developments are refinements only. No matter how successful the refinements to television equipment are, they have not changed the way in which television can be used in the classroom. To obtain an adequate coverage of the classroom or lecture theatre it always has been necessary to provide a number of television receivers in the one room. It has been, and still is, cheaper to provide four or more receivers rather than a television projector.

The early days of television in educational institutions required the reception of a suitable program from a broadcast station at a convenient time or the provision of expensive low quality television camera equipment to provide a signal for the receiver because at that time there was no such thing as a video tape recorder.

The first video tape recorders were designed for use in broadcast stations.

Improvement followed improvement and eventually lower cost non-professional equipment became available. The picture quality was poor, and nobody at the time really believed useful low cost videotape equipment would ever be produced.

Over the years the lower cost equipment has reached a performance capability and flexibility undreamt of in the early days of video tape recording. It is now possible to view recognizable pictures at up to twenty times normal speed forwards or backwards in order to rapidly reach particular parts of the recorded material. Interference-free still frames can be held up to about 8 minutes. Pictures can be displayed at 2 or 3 times normal speed without interference. Acceptable pictures with slight interference can be seen at any speed between still frame and half normal speed. Adding another recording to one already on the tape can be done on a non-editing machine with very little or no discernable picture break-up. Tape costs as little as $6 per hour. With normal care the tape can last for years and be used for many recordings.

The inclusion of broadcast tuners in the low cost video cassette recorders together with sophisticated, accurate timers to allow for the non-attended recording of broadcast transmissions, has produced a very useful, easily operated economical television recording and replay facility. Television cameras (colour or monchrome) and other television signal sources may also be connected to the machine.

The move to higher quality video tape recorders with approximately the same facilities involves considerable expense and the cost of tape for such machines is also higher. The level of production capability required should be the deciding factor in the choice of a video tape recorder. The limit of cost should not be set by the price of the cheapest equipment. The distribution and replay of completed programs can, in most cases, be more than adequately handled by the newest low-cost domestic video cassette machines, but these machines are not suitable for production purposes.

As with most things the quality of the low cost equipment varies from one model to another - the better the quality and the more facilities provided, the higher the price. It is wise not to simply aim for the lowest cost item in the range; nor the highest for that matter.

In terms of its use in education it would seem that the video-tape recorder (be it cassette or open reel) has progressed as far as is possible. The limitations of quality so evident in the past have been overcome and the facilities now available make the recorder a useful device.

The limitation of access time to a particular picture in the tape is preventing its use as a useful random access device. Because the tape must be spooled from reel to reel in the machine, significant improvement in this area cannot be expected.

A recent development in television is videotex. Videotex is a generic term for methods of providing information in the form of text and graphics on the domestic television receiver screen or on a television monitor screen. The information can be sent to the televsion receiver from television broadcast stations, or it can be connnected to the television receiver or television monitor (video display unit) via the telephone system. This latter system is usually referred to as wired videotex.

In both cases the user is provided with a keypad which the user operates to call for a particular page number in which the desired information is contained.

Broadcast videotex is at present being used or tested in many countries. The British system which has been in operation for a few years is called Teletext, the French system, also in use, is called Antiope, and the Canadian system, Telidon, is undergoing final tests in Canada. Australia has a Teletext service in Sydney, Newcastle and Brisbane, while Melbourne has Teletext test transmissions from HSV-7 and GTV-9. HSV-7 are also testing Telidon, while the ABC are to conduct tests with Antiope.

The three systems under test in Australia are all incompatible and the final decision on which is to be officially introduced as the approved service is expected to be announced in two or three years time by the Minister for Post and Telecommunications.

The broadcast videotex service is not expected to hold any interest for those in the educational field as the amount of information is limited to a maximum of eight magazines of 100 pages each. Each page can contain up to twenty lines of information. Pages are transmitted from the television stations in sequence during part of the very short period of time which is normally lost between the transmission of each picture. The videotex signal is not normally seen on the screen. It is not in the picture, but the transmitted data in digital form can be seen as constantly moving black and white dots at the top of the picture on television receivers where the picture does not occupy the whole of the screen from top to bottom.

The pages of information are transmitted in sequence and therefore any page is not likely to be immediately displayed when requested. It takes approximately 3 minutes to cycle through a complete service of 8 magazines of 100 full pages, so that if such a service was being provided and the request for a page was made just after the requested page had been transmitted, the user has to wait three minutes for it to appear again. Fortunately most services do not provide a complete 8 magazines of 100 full pages each of information so that access time is generally much less than 3 minutes. At the other end of the scale access time can be as little as $^1/_{50}$ second.

Wired videotex is considered in the next section.

Electronic processes

So far we have followed a progression in equipment which has facilitated the presentation of picture and sound to those involved in the business of education. Now to consider something which has appeared as a new development in education rather than as a progression from something which has gone before - the computer.

The computer is used in education in a number of ways. First and foremost there must be an understanding of the computer, and subjects related to electronic data processing and computer science study the computer in its own right. Next there are the areas of the application of the computer as a workhorse - to solve problems, to number crunch, to process words. Then we have the use of the computer to provide instructional material in any subject to the student by direct presentation, demonstration, games etc. and finally it is used as an aid in the administration of student records - grades, attendance, progress etc.

Although computers can do very many things and do them rapidly they can only do what they have been told to do and how they are to do it. Computers are the ultimate in preciseness. They require exact input commands and will respond only in the way intended for any given command. In the same way that a producer is required for a film, so is a producer (programmer) needed to produce programs for the computer. Unlike films and slide presentations in the classroom, the computer is run by the student and responds in accordance with the directions given to it by the producer of the program.

Individualized instruction using various forms of media was introduced well before computers became available. The student can follow linear or branched learning projects with books, audio tapes, slides, photographs, films etc., in an appropriate area set aside for the purpose with all the required paraphernalia clustered around.

With the introduction of the computer it is possible to replace the printed word by using a video display terminal, and the computer can remotely control the display of films, slides etc., on the terminal. It can organize branched-learning programs with ease. The computer can be used to maintain student progress in the form of scores, paths taken, time taken etc In this situation the computer becomes the program presentation device, the workhorse for the remote control of other media hardware, administration of the learning program and record keeper.

The most sophisticated of computer assisted instruction systems is PLATO which has recently become available in Australia. PLATO terminals are unique in their integration of various media, such as microfiche and audio tapes at the terminal under the control of the computer. Pre-prepared programs on many subjects at many levels are immediately available. Facilities are provided for educators to write their own programs.

At the other end of the scale are the Tandy TRS80 computers and the like, which have various limitations. Amongst other things the limitations include speed of operation, number and types of commands possible and the amount of memory available.

As previously mentioned with regard to other equipment, the more facilities, the more reliable the operation, the more flexibility, the greater the cost. It can be more costly to expand a low cost microcomputer to greater flexibility than to do the same thing to a microcomputer of higher initial cost.

The future of the computer in education seems to be in the provision of facilities which will be more efficient and at lower cost than those presently available.

Wired videotex, named Prestel, was introduced in Britain for testing some two or three years ago. It is now providing an internal service as well as an international service, which includes Australia.

The display is in the same form as Teletext but information available for users is stored in central and regional computers. The user, by operating a keypad, interrogates the computer which has a very short response time. As previously indicated, connection is via the normal telephone network. Connection to the computer is made by dialling a telephone number. The more sophisticated user terminals include a typewriter keyboard which is used instead of the keypad. This provides the user with a greater variety of services from the computer.

In the home there is a double connection made from the keypad, or typewriter keyboard, and associated circuitry. One connection is to the telephone line and the other is to the television receiver.

Where broadcast videotex is limited to 800 pages and can be of very slow access, wired videotex has the capability of providing hundred of thousands of pages with very fast access, together with the ability of the user to interact with the computer. Broadcast videotex is one way only - from the television station to the user; but it is free of cost.

The educational possibilities of wired videotex are being researched at the moment one consideration being cost. The user pays for the telephone call to the computer and the cost of the facility supplied. Many pages are free e.g. transport time-tables. Computer memory is also available for rent by users for their own purposes.

Present indications are that an Australian Prestel service will be available in about 2 years time.

The Future

What does the future hold for educational technologists in the field of media? In what I suggest will be their order of appearance, are the three systems catching the educational technologists attention at the moment:

1. the video disc
2. satellite communication
3. fibre optic cables

All three of these systems are currently available and in limited commercial use. What then are their futures in education?

The video disc is the same diameter as the 12" LP gramophone record, but we should not speak as if there is only one type disc or one video disc system. There are four different kinds, all incompatable with each other. Of those four, three will be contenders for the domestic market with some form of spin-off for the educational/institutional market.

The system which has greatest potential for the educational/institutional area has been developed by Philips. It is produced in America by Discovision Associates. Pioneer in Japan are also producing video disc players for this type of disc and selling them in the U.S.A.

A small-powered laser is used to read the disc which has as its outer surface a protective coating. The recorded surface thus guarded is therefore less susceptible to damage which would interfere with the replay of the disc than exists with similar types of damage to the LP gramophone record. Because it is a laser beam that extracts information from the disc, the disc is not subject to physical wear like the stylus in the groove of an ordinary record. This type of video disc will therefore not wear out.

Unlike video tape/cassettes it is not possible to record on the video disc. The disc is produced in a factory using mass production techniques, which in turn, means a low cost - a minimum of about $6 for a disc.

There are two types of discs produced for the laser system. One has a playing time of 30 minutes per side. On this disc there can be up to 54,000 individual pictures recorded on each side. Every picture is separately identified by a code on the disc. This allows for access to any individual picture on one side of the disc within a maximum period of 5 seconds - the average access time being $2^{1}/_{2}$ seconds.

The rotational speed of this type of disc is constant (constant angular velocity - CAV) and one complete revolution contains one complete picture.

The other type of disc produced for the laser system has a playing time of up to 1 hour per side. The rotational speed changes over the whole of the disc so that it is at its lowest speed on the outside track. Each individual picture occupies the same linear distance on the face of the disc. Where there is only one picture per revolution on the inside track, around the outside track there are a number of pictures.

This type of disc has a constant linear velocity (CLV) and so it is not possible to access an individual picture and display a still picture in the same way as is done with the CAV disc. The CLV disc is designed for the presentation of feature length movies up to 2 hours long which can be recorded on the two sides of one disc as compared to four sides on two CAV discs.

The major difference between the CLV and CAV discs is the inability of the CLV disc to hold a still picture. Both discs can be played to display a picture backwards or forwards at normal, fast or slow speeds by stepping at different rates across a number of tracks at a time or by holding for different lengths of time on each track.

All players produced for the laser system play both kinds of discs. Unfortunately picture identification coding differs between the Philips and Discovision Associates discs and to be fully useful discs should be produced to be used on each player.

The television picture quality from these discs can be very good. Two sound tracks of very high quality are available for stereo reproduction, or one track each for two different purposes, e.g. different languages or different aspects of the same visual presentation.

The second of the three video disc systems is called VHD and was developed by JVC (Japan Victor Corporation). This system uses a disc similar to, but not exactly the same as, the Philips one. Instead of replay by laser beam, a flat stylus rests on the surface of the disc. The recorded information is picked up by capacitance variations between the stylus and the record surface. Although it is rumoured that attempts are being made to have the Philips and VHD discs compatible i.e., they could be played on each other's equipment, such an arrangement is not possible at present.

Random access, still frame, fast and slow motion forward or reverse are all available from the VHD system.

The third system is the RCA system which uses a capacitance transducer (pick-up) but instead of a flat stylus resting on a flat protective surface, a pointed stylus tracks in a groove as in an LP gramophone record. This introduces problems of wear to the stylus and the disc. Such an arrangement prevents the display of still frames, slow or fast motion and reverse motion. It has been designed purely for the entertainment market and it is claimed to be the lowest cost system to produce.

The Philips system has been available in America for nearly two years, the RCA system has just become available and the VHD system is planned for release later this year. All systems at the moment operate only to the USA television standard and conflicting reports are continually received as to the companies planned release date for systems which operate to the European/Australian television standard.

The University of Nebraska has a video disc project funded specifically to assess the use of these discs in education. They are able to have video discs specifically produced for purposes of research. The production of video discs for the domestic market is, however, unable to keep up with the demand. A time lag of between 5 and 10 years has been estimated before sufficient spare capacity is available from the video disc factories to service any special areas, such as education. Against this is the fact that General Motors have gone very heavily into Pioneer video disc equipment for sales and training purposes and it could safely be assumed that they will not have any trouble in having video discs produced for their particular uses.

The advantages of the Philips video disc in education seem to be the low cost of the disc (estimated $6) as compared to video cassette (approximately $50) and film (approximately $300) and its unique ability to rapidly access any single picture, to show interference-free still, slow or fast forward or reverse pictures, to have up to 54,000 individual pictures, which in conjunction with a microcomputer can be shown as a still, or at various speeds in either direction, or as motion pictures. Sound is not available from the disc in any mode of operation except normal speed forward play. The disc is much less fragile than video tape. Video disc and video cassette player prices are approximately the same.

What is seen as a major disadvantage by some is the inability to record on and to erase a video disc. Laser recordable/readable discs have been developed for computer work but neither the discs nor the equipment have been commercially produced. The erasable feature is still a pipe dream - but it is being researched.

I do not see the video disc replacing the video cassette. The audio cassette did not replace the audio disc. I do however, predict that the video disc will eventually replace the 16 mm film in the classroom, and that schools and institutions which do not have 16mm film libraries will have video disc libraries.

Electronic carriers

From the video disc we move to the next future development - satellite communication.

Direct satellite television reception is now available at a cost - reasonable or not depends on the individual's or the institution's bank balance and income. A satellite receiver attachment to an ordinary TV set, including a one metre diameter parabolic receiver antenna to be mounted on a roof, costs about $2,000.

The next requirement is program material to receive. If the material to be communicated does not rely on the presentation of the here and now i.e. live action events, then video disc seems a much less costly choice in the short term, or for generally intermittent requirements.

Two way satellite communication is much more costly than receive only, as the "up" link requirements to the satellite are not just an attachment to an existing TV receiver, but a complete transmitting system including a much larger diameter antenna at a minimum cost of about $30,000. Unless an adequate signal is to be received by the satellite, there is no point in trying to send it.

It should be noted that satellite communication is simply a carrier of information and not the information medium or the interface of communication with the user. Satellite communication can carry the television signal and control signals for the operation of a random access video disc system. In itself the satellite communication system cannot interact with the user. Neither can it generate television, computer signals, voice signals etc., it can only carry them in the form that they are presented to it. The same must be said for the third development for the future - fibre optic cables. Like all other cables, be they telephone pairs or co-axial cables, they can only carry the signals connected to them. They are the passive carriers of information stored or generated by other means.

Satellites and fibre optic cables do not bring any new facility to communication. They do make existing mediums of communication e.g. TV, sound, telex, computer etc., more readily available to a potential user, often at a lower cost than existing systems where long distances are concerned.

The telephone line, the high quality sound program line, the co-axial cable, microwave links have all been available for many years. I would suggest that if schools and institutions are not now making use of particular communication media such as films, video cassettes, teleconference etc. all of which are presently available for use within their own classrooms and campuses, or for distance education via such things as video and audio cassettes, radio and television stations, then satellites and fibre optic cables are not going to provide any educationally based spur to get them moving.

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Part VIII:

Judgemental Response

1. Where did we get and where shall we go?
A collective response
R.A. Cannon, N. Henry & B.W. Imrie

WHERE DID WE GET AND WHERE SHALL WE GO? A COLLECTIVE RESPONSE

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Much thought was given to the implications of being official respondents at the final session of a conference so diverse and interesting as the 1981 HERDSA Conference at Monash University. There was vertical thinking as we met hastily for discussion between Conference sessions and, following the de Bono precept, there was lateral thinking for at least one respondent as he lay in bed hoping for inspiration! One indicator of the overall success of the Conference was that there seemed to be just as many people present at the final session as at the opening session. More specifically, however, a suitable framework for responding to a conference is to consider its strengths, weaknesses and main points of interest.

There were many strengths - stimulating keynote addresses; a wide range of papers, seminars and workshops; an even wider range of acquaintances to make and to renew; and an excellent social programme.

The conference model assigned to the keynote speakers the task of presenting information around the elements of a conceptual framework of teaching and learning. The special interest seminars provided an opportunity to explore approaches and issues within specific disciplines.

Professor Wilf Malcolm's address, 'Planning the means by which teaching and learning can occur', included a strong emphasis on the need for adequate access to higher education. He pointed to the need for students to be able to transfer from one course to another and from one institution to another.

Professor Richard Sutton, in his session 'Technique and art in tertiary teaching'. showed us how teaching in a discipline can be raised to an art. His address showed how a thoughtful and skilful teacher of any discipline could interact with his students in a creative way. Professor Sutton's session demonstrated the value of thoughtful analysis of the nature of teaching in a particular discipline, in this case, law.

Mr. Bernard Rechter, in his address 'The matter of judgment of performance", appealed to us for care in managing subjective judgment in assessment. It was useful to have illustrated some ways in which subjective elements could be managed. Bernard also warned us that too much concern with the contribution of ongoing student assignments to final assessment may *inhibit student learning. He recommended that assessment for diagnostic purposes be separated from assessment for pass/fail decisions.*

Dr. Barbara Falk's address on 'The basic elements of teaching and learning in higher education' showed us the significance of applying philosophical thinking to education. Barbara took us carefully through various areas we had already examined at the conference and showed us how value-laden and culturally determined our educational practices are. The gratitude expressed at the end of her address showed how great is the need for such clarification. The success of the conference model was due in substantial measure to the identification of such value structures by the keynote speakers. There was a clear demand for such philosophical analysis by conference participants. It was clear that the conference satisfied that demand.

There were a few weaknesses. Relatively few sessions dealt directly with teaching in the disciplines. More than half of the sessions were concerned with out-of-classroom considerations. It was a little surprising that in a conference with 'teaching and learning in the major disciplines in higher education' as its theme, the practical business of teaching did not receive more emphasis. It would have been interesting, for example, to have heard more about the ways in which the different disciplines seek and present knowledge and influence styles of teaching and learning. This is not to imply that this matter was totally neglected - as those of us who participated in such sessions as teaching engineering skills (Geoff Smith), mapping disciplinary culture-climates (Chris de Winter Hebron), and simulation in law and social work (John Hedberg), can testify. However, the question of disciplinary distinctiveness is one of considerable interest and relevance to all of us, and most particularly to those directly involved in professional development activities. It deserves more attention in conferences than it receives. Perhaps the relative neglect of the demands of different disciplines illustrates the paucity of knowledge in this area; in which case, increased attention is indicated for the future.

In her address, Barbara Falk referred to the 'wave of scepticism' sweeping education. There is a tendency for us to be sceptical about knowledge itself, about aspects of teaching and learning and about the profession of teaching. All of this can be quite healthy and proper unless, of course, scepticism leads to a paralysis of action in matters of immediate and pressing concern to teachers and learners. The contributions to this conference have shown that there is much that can be done to improve the quality of teaching and learning as well as showing that much more needs to be done. It behoves members of HERDSA as professional teachers and researchers in higher education to respond positively and constructively to this challenge.

Points of interest undoubtedly include the wide variety of perspectives offered by the keynote speakers and workshop/seminar leaders. These are too numerous to rehearse in a paper of this nature and, of course, they are fully documented elsewhere in this volume. From HERDSA's point of view, it is interesting - indeed encouraging - to observe the extent to which HERDSA conferences are becoming international in orientation and participation. This year we had participants from Thailand, Indonesia, Canada, USA, West Germany and the United Kingdom. Of course, the interaction between participants is always interesting - as the following interchange between a workshop leader (L) and participant (P) illustrates:

L - I would have thought it was obvious.
P - No, it is not at all obvious.
L - Well, perhaps I am expecting too much of you.

In preparing our evaluative response to the Conference, we rejected the use of evaluation instruments such as questionnaires; our response to the Conference was intended to be neither summative nor formative, but reflective. The 'latest' taxonomy commends itself as a 'deceptively simple yet pedagogically and psychologically sound instrument' (author's description!). Applied to the Conference experience, the 'Experiential Taxonomy' (1) implies:

Exposure	Conference organisation and publicity organised by Rod Wellard and his team; our expectations - a wide range, from HERDSA founder members to first-timers.
Participation	Higher education people from all over Australia and overseas.
Identification	As our participation developed, in different ways, into experience, we identified people to meet and sessions to attend.
Internalisation	We started making connections between our new experiences, the people we are and the experiences and expectations which we brought with us to the Conference.
Dissemination	What will we do with these Conference experiences? Will they be added to the pile of plastic Conference wallets containing the Conference residue of lists of participants, creative doodles and cryptic notes? Or will it be worth disseminating so that others can share, albeit vicariously, in a Conference which was a stimulating professional experience?

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HERDSA 1981

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